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DISEASES CAUSED BY BACTERIA AND FUNGI

CHANDLER, C. A. & VON DER GOLTZ, E. (1952). **Studies of the effect of aureomycin on the production of penicillinase by staphylococci.** —*Johns Hopk. Hosp. Bull.* **91,** 475-479. [Abst. from authors' summary.] 964

Of 27 strains of staphylococci studied, 6 which had a moderate to high resistance to penicillin, lost their ability to produce penicillinase during limited exposure to aureomycin, but regained this ability following subsequent transfer to heart infusion broth agar. Six of the strains, which were highly resistant to penicillin, retained their full capacity to produce penicillinase in spite of limited exposure to aureomycin. Fifteen of the strains, which were penicillin sensitive, and did not produce penicillinase, underwent no change following exposure to aureomycin.

HANSEN, P. A. (1953). **A note on the name *Streptococcus agalactiae* Lehmann and Neumann.**—*Int. Bull. bact. Nom. Taxon.* **3,** 21-23. 965

H. stated that *Str. agalactiae* (Lehmann and Neumann, 1896), though based on a faulty description, is preferable on grounds of widespread usage to the older *Str. nocardi* (Trevisan, 1889) and should be retained.—J. E. SMITH.

FORD, C. M. & WILSON, J. B. (1952). **The penicillin resistance of *Streptococcus agalactiae* isolated before and after penicillin therapy.**—*Cornell Vet.* **42,** 291-295. [Abst. from authors' summary.] 966

When 281 cultures of *Str. agalactiae,* obtained from untreated animals, were assayed by a tube dilution method, none was found to possess resistance to penicillin: 120 strains of the organism were isolated 1–3 weeks after penicillin therapy. They revealed no tendency to develop resistance.

BAUMGARTNER, H. (1953). Prophylaxie et traitement de la mammite. Effets des antibiotiques sur la qualité des produits laitiers. **[Effect on milk products of antibiotics used in treatment of mastitis.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 244-255. [English summary.] 967

A general description of the prophylaxis and cure of bovine mastitis. Prophylaxis should be directed not only against infective organisms but also against any faults of management, nutrition, or heredity which tend to weaken the resistance of the udder to infection. In view of the unsuitability of milk containing antibiotics for butter- and cheese-making, milk from an animal undergoing therapy should not be sold until at least 4 days after the completion of antibiotic treatment.—A.S.

TORRES, C. M., DE ALMEIDA CARDOSO, R. A. & PACHECO, G. (1951). Epizootia estreptocócica em cobaia. **[An epidemic of streptococcosis in g. pigs.]**—*Proc. Vth Congr. bras. Vet.* São Paulo, 1950. 671-676. 968

An outbreak of acute purulent lymphadenitis and polyarthritis in g. pigs was found to be due to infection with *Streptococcus zooepidemicus.* Affected g. pigs had skin abscesses and in those animals which failed to respond to sulphanilamide treatment P.M. examination revealed acute fibrinopurulent peritonitis and necrosis and abscesses in the liver.

—I. W. JENNINGS.

ROBERTSON, O. H., HAMBURGER, M., JR. & GREGG, L. A., (1953). **On the nature of bacteremia in experimental pneumococcal pneumonia in the dog. I. Relationship of natural pneumococcidal-promoting activity of the serum to blood invasion.**—*J. exp. Med.* **97,** 283-296. 969

Bacteraemia in experimental pneumococcal pneumonia in dogs may be followed by the disappearance of pneumococcal opsonins from the blood, apparently depending on individual variations in the body's capacity for replenishing opsonins absorbed by circulating pneumococci.

Since bacteraemia precedes opsonin depletion, it is considered that the blood's anti-pneumococcal action is not the principal inhibitor of blood invasion, though it doubtless causes rapid destruction of pneumococci which enter the circulation.—J. E. SMITH.

SALISBURY, R. M. (1953). **A new aid to the diagnosis of *Vibrio foetus* infection in cattle.** [Correspondence.]—*N. Z. vet. J.* **1,** 128-129. **970**

A gauze and cotton-wool tampon with string attached is inserted in the vagina near the cervix by means of a hollow metal cylinder and a rod. The tampon, withdrawn by means of the string after 30 min. is placed in formol saline for extraction of antibodies.—IAN NEWSAM.

PLASTRIDGE, W. N., EASTERBROOKS, H. L. & WILLIAMS, L. F. (1953). **The tampon method of collection and the examination of cervico-vaginal mucus of *Vibrio fetus* agglutinins.** —*J. Amer. vet. med. Ass.* **123,** 516-520. [Abst. from authors' summary.] **971**

The authors described a practical procedure for collecting cervico-vaginal mucus from cows by the tampon method and examining the material for *V. fetus* agglutinins.

VAN ULSEN, F. W. (1953). Gastro-enteritis bij varkens. Komt vibrio-dysenterie in Nederland voor? **[Gastro-enteritis in pigs: does vibrionic dysentery occur in pigs in Holland ?]**—*Tijdschr. Diergeneesk.* **78,** 560-568. [English, French and German summaries.] **972**

Microscopic examination of the intestinal mucosa of 10 pigs, 2–10 weeks old, that had died of haemorrhagic gastritis revealed the presence of vibrios, morphologically similar to *V. fetus*. They were isolated on blood agar under 10% CO_2 and subcultured in chick embryos.

—C. A. VAN DORSSEN.

I. SMITH, H., KEPPIE, J. & STANLEY, J. L. (1953). **A method for collecting bacteria and their products from infections in experimental animals, with special reference to *Bacillus anthracis*.**—*Brit. J. exp. Path.* **34,** 471-476. **973**

II. SMITH, H., KEPPIE, J. & STANLEY, J. L. (1953). **The chemical basis of the virulence of *Bacillus anthracis*. I. Properties of bacteria grown *in vivo* and preparation of extracts.**—*Ibid.* 477-485. **974**

III. KEPPIE, J., SMITH, H. & HARRIS-SMITH, P. W. (1953). **The chemical basis of the virulence of *Bacillus anthracis*. II. Some biological properties of bacterial products.**—*Ibid.* 486 - 496. [Abst. from authors' summaries.] **975**

I. An account of the use of a method for the separation of bacteria and their products from infections in experimental animals. The authors collected from 100 g. pigs infected with *B. anthracis* 1·5–2·0 g. of the organism and 1·5–2·5 l. of body fluids containing its extracellular products. A high degree of freedom from blood cells was obtained by a process involving only 10–13% overall loss of the total bacteria collected, the max. contamination with both types of blood cell being 0·3%.

The method was shown to be equally effective for the body fluids obtained from five other infections in g. pigs.

II. *B. anthracis* organisms harvested from infected g. pigs differed from those grown under a variety of conditions *in vitro*, mainly in their rapid lysis in ammonium carbonate solution. Sterile extracts of *B. anthracis* grown *in vivo* and prepared by (a) extraction with ammonium carbonate solution and (b) shaking with glass beads, contained over 95% of bacterial substance.

III. Before chemical fractionation, products of *B. anthracis* harvested from infected g. pigs were examined for virulence. Large quantities of intra- and extracellular products were non-toxic when injected i/p. Both products contain aggressins as shown by their ability to promote infection by sub-lethal doses of *B. anthracis*, and to interfere with phagocytosis.

Extracellular, but not intracellular products produced active immunity to anthrax in g. pigs. An extracellular aggressin and the protective antigen may be the same substance.

MITSCHERLICH, E. & REUSS, U. (1953). Ergebnisse der bakteriologischen Nachprüfung makroskopisch tuberkulosefreier Organe von tuberkulin-positiven Rindern. **[Results of bacteriological examination of organs with no visible evidence of TB. from tuberculin positive cattle.]**—*Dtsch. tierärztl. Wschr.* **60,** 387-389. **976**

The organs of 38 cattle that had been positive reactors to the tuberculin test, but in which no visible lesions of TB. were discernible at P.M. examination, were examined culturally and by g. pig inoculation for the presence of tubercle bacilli. Bovine type tubercle bacilli were present in 8, human type tubercle bacilli in 3, avian type tubercle bacilli in one case; non-pathogenic acid-fast bacilli were present, in the lymph nodes only, of one animal. No explanation for the positive tuberculin reaction could be found in

the other 25 cases; but as the number of tubercle bacilli in the organs of some of the bacteriologically positive cases was very small—in one case, only one of 10 g. pigs developed TB., and in another case only 3 out of 10—it was suggested that tubercle bacilli may have been present in such small numbers as to have escaped detection.—A. MAYR-HARTING.

COMMÉNY, H. (1953). Statistiques comparées de morbidité tuberculeuse bovine et porcine aux abattoirs du Havre, de 1932 à 1952. [**Morbidity statistics from 1932–52 for TB. in cattle and pigs slaughtered at Le Havre.**]—*Rec. Méd. vét.* **129,** 505-510. 977

Percentage figures based on weight of carcass meat condemned on account of TB. against number of cattle slaughtered were given in graph form; these data suggested that legislation had made no impression on the incidence of the disease. Similar figures relating to pigs showed an increased incidence, which C. attributed to the increasing custom of feeding milk products.

—G. V. LAUGIER.

GRAY, D. F. (1953). **The significance of haemagglutination titres in bovine tuberculosis.**—*Aust. vet. J.* **29,** 293-297. 978

G. considers that the haemagglutination test, and its haemolytic modification, apparently have the same disadvantage as other serological tests applied to the diagnosis of TB. in cattle, *viz.* lack of specificity.

This paper reports an unsuccessful attempt to prepare crude antigenic extracts of tubercle bacilli which, when used with the techniques described, would give a positive result in infected cattle, and a negative result in non-infected animals. No evidence was obtained that the test is an aid to diagnosis whether in conjunction with the tuberculin test or not. It failed particularly where a specific reaction would be of greatest value, *i.e.,* in those cattle with a positive tuberculin test but with no visible lesions at autopsy.

The failure of this method to clarify the serology of bovine TB. is analagous to the lack of progress in the human disease where efforts have been made along similar lines.

—K. G. JOHNSTON.

SINDO, T., WAKAKURA, K. & KOMINE, I. (1952). **Studies on the antigenic substances of Old Tuberculin, reacting in the complement fixation test.**—*Jap. J. exp. Med.* **22,** 97-107. 979

Serum samples from tuberculous g. pigs, rabbits and human patients gave a positive reaction in each case to the two-dimensional complement-fixation test, using purified O.T. as antigen. The authors discussed the field patterns of the tests from the aspect of the dynamics of the antigen-antibody reaction, postulating the existence of two types of antigen-antibody system.—KOGI SAITO.

TOENNIESSEN, E. (1950). Über die spezifische Diagnostik der Tuberkulose durch intrakutane Anwendung von Tebeprotin. [**Intradermal test for the diagnosis of TB. in man using " tebeprotin ", a preparation containing alkali-soluble proteins of the tubercle bacillus.**]—*Med. Klinik.* **45,** 560-562. 980

The intradermal " tebeprotein " test is useful for diagnosing TB. in various sites and stages in human beings, and for assessing the activity of the tuberculous process. It is reliable and without risk even in the presence of fever.

—W. R. BETT.

SWITHINBANK, J., SMITH, H. V. & VOLLUM, R. L. (1953). **The intrathecal tuberculin reaction.**—*J. Path. Bact.* **65,** 565-596. 981

Intrathecal injection of P.P.D. tuberculin in subjects sensitized to tuberculo-protein causes a prolonged, complex c.s.f. disturbance, which is a direct demonstration of a meningeal antibody-antigen reaction.—W. R. BETT.

MUCCI, G. (1953). Considerazioni e relievi clinici sull'applicazione dell'idrazide isonicotinica nella tubercolosi bovina. [**Considerations and clinical observations on the application of *iso*-nicotinic acid hydrazide in bovine TB.**]—*Zootec. e Vet.* **8,** 278-283. [English summary.] 982

An account of the treatment of 169 tuberculous cattle with *iso*-nicotinic acid hydrazide. Animals not markedly affected by TB. showed little change, but there was improvement in weight and condition of badly affected cattle. This improvement was sometimes accompanied by a change from positive to negative in the reaction to the tuberculin test, not of course signifying complete cure.—I. W. JENNINGS.

MIDDLEBROOK, G. & COHN, M. L. (1953). **Some observations on the pathogenicity of isoniazid-resistant variants of tubercle bacilli.**—*Science.* **118,** 297-299. 983

The authors found that strains of tubercle bacilli which were resistant to 10μg. of *iso*-nicotinic acid hydrazide (INH) per ml. of oleic acid-albumin solid medium were attenuated and did not produce fatal infection in g. pigs. Their nutrient requirements differed from those of the parent strain. They could, however, still proliferate in the lung cavities of human patients.

In some cases such strains reverted to INH sensitivity and regained full pathogenicity for g. pigs.—A. MAYR-HARTING.

PÉRÈS, G. (1953). Données statistiques sur la tuberculose porcine. **[Incidence of tuberculosis in swine.]**—*Bull. Soc. Sci. vét. Lyon.* **54 & 55, 123-125.** **984**

P. gave statistics comparing the incidence of TB. in pigs and cattle slaughtered at public abattoirs in France between 1949 and 1950. Similarly he gave percentage figures for the incidence of lesions in various organs in beef cattle, bulls, cows and pigs. P. considered his data to indicate that pigs were the least sensitive to infection under natural conditions.

—G. V. LAUGIER.

LUKE, D. (1953). **Observations on the use of adrenocorticotrophic hormone and adrenal cortical extract in tuberculosis in the pig. A note on the effects of these preparations on the tuberculin skin sensitivity.**—*Brit. vet. J.* **109,** 507-511. [Author's summary modified.] **985**

The use of adrenocorticotrophic hormone and adrenal cortical extract in experimental TB. in pigs, appeared to enhance susceptibility and favour generalization of the disease. The parenteral administration of these preparations did not have any effect on the local skin reaction induced by the i/d injection of tuberculin. When used locally at the test site there was some evidence that the hormone interfered with the full expression of the skin reaction.

LUKE, D. (1953). **The effect of pregnancy and parturition on the tuberculin skin sensitivity of the sow.**—*Brit. vet. J.* **109,** 327-330. [Author's summary modified.] **986**

Of 8 sows tested with tuberculin during pregnancy and before and after parturition, 2 were reactors to bovine type tuberculin, 5 to avian type tuberculin, and one to both types. At the time of parturition there was evidence of desensitization in both reactors to the bovine type tuberculin. Out of the 5 reactors to the avian type there was desensitization at parturition in 2 sows and enhancement of the reaction in 2 others.

STEENKEN, W., JR., WOLINSKY, E., BRISTOL, L. J. & COSTIGAN, W. J. (1953). **Use of the rabbit in experimental tuberculosis. I. A visual method of evaluation of antituberculous agents by serial chest roentgenograms.** —*Amer. Rev. Tuberc.* **68,** 65-74. [French and Spanish summaries.] **987**

Serial chest X-ray examinations were made in rabbits following i/v infection with bovine type tubercle bacilli. It was found possible in this way to follow the course of the disease and to evaluate the different treatments.—D. LUKE.

DESBORDES, J., BONET-MAURY, P. & DEYSINE, A. (1953). Application pratique des bactéries marquées. Etude de la vitesse de dispersion du *Mycobacterium tuberculosis* marqué au ^{32}P chez le cobaye. Sort précoce des bacilles en la présence ou en l'absence d'hyaluronidase. **[A study of distribution of *M. tuberculosis* after injection using labelled organisms.]**—*C. R. Soc. Biol., Paris.* **147,** 1212-1214. **988**

Five hours after subcutaneous injection into g. pigs of an emulsion of tubercle bacilli labelled with radio-active phosphorus, the organisms are distributed throughout the body, with the greatest concentration in the lung and spleen. When hyaluronidase is added to the emulsion, dissemination is much more rapid and distribution is equal over the entire body.—W. R. BETT.

SENGIR, E. (1953). **The effect of vitamin C on guinea-pigs injected with *Mycobacterium tuberculosis*.**—*Proc. XVth Int. vet. Congr. Stockholm.* **1953. 1,** Pt. 1. 630-633. [In English. French and German summaries.] **989**

G. pigs receiving 10–20 mg. vitamin C daily survived infection with *M. tuberculosis* for a longer period than g. pigs receiving 0·5–5 mg.

—R.M.

WAKSMAN, B. H. & ADAMS, R. D. (1953). **Tubercle bacillus lipopolysaccharide as adjuvant in the production of experimental allergic encephalomyelitis in rabbits.**—*J. infect. Dis.* **93,** 21-27. **990**

The lipocarbohydrate of the tubercle bacillus was shown to be an effective adjuvant, though of lesser potency than whole organisms, in the production of allergic encephalomyelitis in rabbits by injection of homologous nervous tissue. Delayed skin hypersensitivity reactions of the tuberculin type to homologous nervous tissue + adjuvant were well correlated with the development of encephalomyelitis. These observations support the hypothesis that the disease is associated with a tuberculin type of hypersensitivity.—C. A. E. BRIGGS.

GLOVER, R. E. & RITCHIE, J. N. (1953). **Field trials with B.C.G. for the immunisation of calves against tuberculosis. An account of experiments carried out on behalf of the Agricultural Research Council's technical committee on tuberculosis in animals.**—*Brit. vet. J.* **109,** 411-427. **991**

This report summarizes the results of two

field experiments on the value of B.C.G. vaccine given i/v for the protection of cattle young stock exposed to TB. In one experiment groups of TB.-free calves were vaccinated and subsequently distributed in herds heavily infected with TB. Re-vaccination was carried out at 6-monthly intervals. Of 47 such calves placed in 4 infected farms during 1935-44, only 33 were eventually available for P.M. examination and 9 of these showed evidence of TB., though the lesions were not extensive.

In the other experiment lasting from 1942-52, calves were separated from their dams and tuberculin tested at about 3 months. Those that passed the test were vaccinated in the same way as in the other experiment. In all, 6,725 animals were vaccinated in 140 infected herds, but for various reasons only 67 herds remained until the objects of the experiment were achieved. The disease was eradicated in 51 of these herds and in 16 little or no progress was achieved. It was felt that a substantial reduction in the incidence of the disease was obtained, but owing to various difficulties encountered and to the fact that many owners found the trial tedious the data were not as complete as they might have been.

Undesirable vaccination reactions were encountered in 32 of the herds. Three deaths were attributed to the effects of the vaccine and symptoms of shock were seen immediately after vaccination in some cases and 3–4 weeks later in others.—D. LUKE.

NICEWICZ, W. (1952). Szczepy pratków kwasoodpornych wyizolowanych z nornika zwyczajnego (*Microtus arvalis*). [**Acid-fast strains of bacteria isolated from the field vole** (*M. arvalis*).]—*Ann. Univ. M. Curie-Skłodowska.* Sect. C. **6**, 263-296. [English and Russian summaries.] 992

Two virulent strains of an organism isolated from the vole, *Microtus arvalis,* and grown on either solid or liquid culture media resembled human type of *Mycobact. tuberculosis* in respect of physiological properties, bovine type in respect of pathogenicity for voles, g. pigs and rabbits, and murine type (vole bacillus) in respect of polymorphism, respectively. The two strains were not pathogenic for pigeons. Cultures grew at 41°C. and stopped growing at 45°C. Polymorphism was most evident after passages and in old liquid media.

Rabbits injected i/v with 0·1 mg. of culture developed lesions in the lungs resembling those of TB. Infected laboratory animals gave positive tuberculin reactions.

Strains of *M. phlei* and other acid-fast saprophytic bacteria were also isolated from voles.

There is a list of 38 references.—E.G.

BUHLER, V. B. & POLLAK, A. (1953). **Human infection with atypical acid-fast organisms.**—*Amer. J. clin. Path.* **23**, 363-374. 993

The authors presented evidence indicating that two cases of a disease resembling TB. in human beings were caused by an atypical acid-fast organism present in the lungs and sputum. They isolated similar organisms from other patients at present under study and reported preliminary work with experimental animals. They described the cultural characteristics of the organism: it has not yet been satisfactorily identified.—A.S.

DOYLE, T. M. (1953). **Johne's disease.**—*Brit. vet. J.* **109**, 275-280. [Author's summary modified.] 994

Johne's disease vaccine appeared to afford an appreciable degree of protection to goats against bovine type tubercle bacilli. Tuberculous lesions in vaccinated goats examined 5, 8 and 11 months after infection, were considerably fewer than those in the controls, though the lesions in vaccinated goats examined 20 months after the infective dose were as extensive as those in the controls. When goats vaccinated against Johne's disease were artificially infected with bovine type tubercle bacilli, the comparative tuberculin test failed to differentiate between the tuberculin reactions induced by Johne's disease vaccine and those arising from a superimposed tuberculous infection.

FRANCIS, J., MACTURK, H. M. MADINAVEITIA, J. & SNOW, G. A. (1953). **Mycobactin, a growth factor for** *Mycobacterium johnei*.—*Biochem. J.* **55**, 596-607 [Abst. from authors' summary.] 995

The authors described methods for large-scale production of *M. phlei*: the organism contained large amounts of growth factor for *M. johnei* when grown on media made from beef, but not on other media. They described a method for the assay of this factor. It was isolated as a crystalline aluminium complex and also in an amorphous metal-free form. The authors suggested the name ' mycobactin ' for the compound, which had not previously been described, and presented evidence in support of the empirical formula $C_{47}H_{75}O_{10}N_5$. They gave details of its general properties and of a number of derivatives.

The conc. of the compound in living *M.*

phlei grown on beef infusion medium was estimated at about 3 mg./g. Optimum growth of *M. johnei* is promoted by the presence of 40–80 μg. mycobactin/ml. of medium.

BAREI, S. (1953). Risposta immunitaria a ripetute dosi di vaccino malrosso adsorbito concentrato. **[Immune response of pigs to repeated doses of concentrated swine erysipelas adsorbate vaccine.]**—*Clin. vet., Milano.* **76,** 225-228. **996**

When concentrated adsorbate vaccine is diluted with aluminium hydroxide, a single injection elicits a better immune response from pigs than when it is diluted with saline. A second injection given within 15–30 days did not enhance the immune response, probably on account of a partial neutralization of the antigen following the first injection.—I. MARTINI.

BEYER, K. M. (1953). Über galvano-therapeutische Versuche an Rotlauf-Serumpferden (Ein Beitrag zur Anwendung des galvanischen Stromes in der veterinären Elektro-Medizin). **[Electrotherapy of arthritis in horses used for the production of *Erysipelothrix rhusiopathiae* serum.]**—*Dtsch. tierärztl. Wschr.* **60,** 465-473. **997**

Ten serum horses with arthritis affecting various joints were given repeated galvanotherapy. Four animals with long-standing arthritis did not show any improvement: three of six recent cases showed some response, but so do a proportion of untreated animals.

—E. G. WHITE.

EVELETH, D. F., BOLIN, F. M. & TURN, J. (1953). **Listeriosis of sheep and swine.**—*Bi-m. Bull. N. Dak. agric. Exp. Sta.* **26,** 47-51. [Abst. from authors' summary.] **998**

The incidence of *Erysipelothrix* [*Listeria*] *monocytogenes* infection appears to be increasing and chemotherapeutic agents do not appear to be very effective in its control. The isolation of the organism appears to be the only satisfactory method of diagnosis. The authors described a diagnostic skin test.

Sheep vaccinated with bacterin appear to acquire a moderate degree of immunity.

STEVENS, A. (1953). Infectieuze pneumonie bij runderen. **[Pasteurella broncho-pneumonia in cattle.]**—*Tijdschr. Diergeneesk.* **78,** 870-872. [English, French and German summaries.] **999**

Past. haemolytica was cultured from the blood of one of three heifers with pneumonia, all in the same herd. All three recovered following combined injections with sodium sulphamethazine, procaine penicillin and streptomycin.—C. A. VAN DORSSEN.

SHAND, A. & MARKSON, L. M. (1953). **Bacterial meningo-encephalitis in calves (Pasteurella infection).**—*Brit. vet. J.* **109,** 491-495. [Authors' summary modified.] **1000**

A report on an outbreak of disease in young calves. Meningo-encephalitis was diagnosed in the three calves available for examination; *Past. septica* was isolated in pure culture from each. In one only was infection generalized and it is suggested that in this case the infection was by the umbilical route. In the other two the portal of infection was doubtful.

DOUGHERTY, E. (1953). **The efficacy of several immunizing agents for the control of fowl cholera in the White Pekin duck.**—*Cornell Vet.* **43,** 421-427. **1001**

A mixture of 12 strains of *Past. septica* isolated from ducks was used to prepare broth bacterins and a duck embryo formolized vaccine. In addition four commercial bacterins were tested. The duck embryo vaccine gave much better protection than any of the bacterins. It protected 83% of ducklings challenged 4 weeks after immunization but at 6 weeks the percentage protected was only 27.—D. LUKE.

DAM, A. (1952). Undersøgelse over bakteriefloraen ved otitis externa hos hund. **[The bacterial flora in external otitis in dogs.]**—*Nord. VetMed.* **4,** 1207-1210. [In Danish. English and German summaries.] **1002**

Pure cultures of staphylococci were isolated from 16 out of 17 cases of external otitis in dogs and a mixed culture of staphylococci and *Pseudomonas pyocyanea* from the other. The resistance of the various strains to sulphathiazole, penicillin, streptomycin, aureomycin, chloramphenicol and terramycin was used as a basis for the selection of the therapy to be used. A change in sensitivity of the strains was found to have occurred in some cases which failed to respond to treatment.—H. BOYD.

RECORD, B. R. & TAYLOR, R. (1953). **Some factors influencing the survival of *Bacterium coli* on freeze-drying.**—*J. gen. Microbiol.* **9,** 475-484. **1003**

An account of quantitative studies on the survival of bacteria after drying from the frozen state, using several strains of *Bact. coli.* The survival percentage varied widely with the strain used when phosphate buffer was used at pH 7·6, but with a given strain there was a well-defined relationship between concentration of organisms

in the suspension before drying and percentage survival after drying and reconstitution: the more dilute the suspension the lower the percentage survival. When, however, a low conc. of organisms was suspended in cell-free filtrate from a higher conc. of the same organisms, the survival percentage corresponded with that expected for the higher conc. of organisms, soluble material derived from the organisms themselves affording protection during the drying stage of the process, but not during freezing. The addition of glucose to this material enhanced its protective effect, especially during prolonged secondary drying.—F.E.W.

BUTTIAUX, R. & KESTELOOT, A. (1948). Les entérobactéries dénommées " Bacilles paracoli " ou " ParaColobactrum ". [**Enterobacteria called " B. para-coli " and " paracolobactrum ".**]—*Ann. Inst. Pasteur, Lille.* **1,** 103-140. **1004**

The authors studied the Gram-negative paracolon bacilli, characterized by slow fermentation of lactose and forming a group which for long has served to contain all enterobacteria which failed to show precise diagnostic biochemical and antigenic properties. The strains studied came mainly from human faeces (38 strains), but 10 strains were obtained from the human appendix and one from the faeces of a bitch. They described morphological, biochemical and serological studies; it was concluded that the paracolon bacteria form a heterogeneous group, some of the members containing appreciable amounts of the somatic antigens of the salmonella group. It seems that the paracolon bacilli are intermediate between salmonella and *Bact. coli.* The organisms are sometimes pathogenic for man and three case histories are given: their pathogenicity for domestic animals is said to be of great importance but is reserved for a subsequent publication.

—E. G. WHITE.

HENNING, M. W. (1953). **Calf paratyphoid. I.—A general discussion of the disease in relation to animals and man. II.—Artificial immunization. III.—The transmission of antibodies to newly-born calves.**—*Onderstepoort J. vet. Res.* **26,** 3-23, 25-44 & 45-59. [Abst. from author's summaries.] **1005**

I. Of 507 strains of *Salmonella* isolated from outbreaks of calf paratyphoid, 491 were *S. dublin,* 11 *S. typhi-murium,* 4 *S. enteritidis,* and one *S. bovis-morbificans.* Twelve further strains of *S. dublin* were isolated from adult cattle. A pathological study of the liver and spleen revealed in general a fairly close agreement with those of the bacteriological study. Infected, carrier, or immunized animals generally produced " H " agglutinins, " O " agglutinins being present only in very low titre.

H. discussed the role of rodents and the so-called rat " viruses " in the dissemination of salmonella infection, and the role of *S. dublin* in food poisoning in man.

II. Of various vaccines prepared from *S. dublin* and other *Salmonella* a formolized aluminium hydroxide precipitated vaccine gave a partial protection to mice against virulent cultures of *S. dublin.* The routine use of this vaccine in calves on badly infected farms markedly reduced deaths from calf paratyphoid; in a few outbreaks where it failed, a vaccine made from a local strain invariably gave complete protection when used regularly.

Challenge of immunity with fresh milk-cultures *per os* usually elicited mild symptoms of paratyphoid.

The " H " agglutinin titre of the serum of vaccinated calves rose markedly, but the " O " agglutinin titre remained extremely low, even after a " booster " injection of vaccine.

H. described an easy method of artificially infecting calves with fresh milk cultures of *S. dublin,* but the pathogenicity for calves of cultures of the same strain, grown under apparently identical conditions, varied greatly, possibly because of some factor in the media.

Artificially infected calves treated with large doses of phthalylsulphathiazole *per os* recovered, whereas untreated controls died.

III. In a study of the transmission of antibodies from immunized pregnant cows *via* the colostrum to their calves it was observed that the agglutinin titre of the colostral whey and of the calf's serum might be several times that of the dam. At birth few if any agglutinins could be detected in the calf's serum; the titre rose within 24 hours after the first drink of colostrum and gradually declined after 2 weeks, remaining at a significant level for about 3 months.

When new-born calves from immunized or non-immunized dams were fed hyperimmune serum before ingestion of colostrum, large quantities of agglutinins could be detected in their sera 12 hours later, these persisting, in progressively decreasing titre, up to 3 months.

Vaccination of calves from immunized dams one, two or three weeks after a colostral feed, produced no increase in their agglutinin titre, the immunity being apparently completely blocked by the antibodies absorbed from the colostrum. Such calves had a fair degree of resistance to challenge with virulent milk cultures, probably sufficient to protect them against

natural exposure. H. therefore recommended the immunization of pregnant cows as an additional method of control. Hyperimmune serum may be fed to new-born calves when immune colostrum is not available.

FOURNIER, J., DE LAJUDIE, P. & BRYGOO, E. R. (1953). Enquête sur les salmonelles chez les porcs à Saigon. [**Survey of** *Salmonella* **species in pigs in Saigon.**]—*Ann. Inst. Pasteur*. **84**, 792-796. **1006**

Cultural examination of the mesenteric lymph nodes of 360 pigs at Saigon abattoirs yielded 35 strains of salmonella. These included 23 strains of *S. cholerae-suis,* 21 of which were of the diphasic (American) type.
—E. A. GIBSON.

GWATKIN, R., DZENIS, L. & OAKLAND, G. B. (1953). **Studies in pullorum disease. XXX. The effect of oral administration of testicular extract on the infectivity of** *Salmonella pullorum* **in chicks.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp. 116-119. **1007**

The authors described 5 experiments in which they examined the effect of testicular extracts containing hyaluronidase on experimental infections with *S. pullorum*. The mortality rate was increased in one experiment, decreased in a second and unchanged in the remaining three.
—E. A. GIBSON.

HEEMSTRA, L. C. (1953). **Salmonella infections in chickens and turkeys.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp. 314-317. Discussion: pp. 317-319. **1008**

Of some four million birds tested for pullorum disease in 1936 under official control schemes in the U.S.A. 3·66% were reactors. In 1951 nearly 37 million birds were tested and the percentage of reactors was 0·54. Fowl typhoid is increasing particularly among turkey flocks. H. discussed the action of sulphonamide drugs in controlling typhoid infections, the value of disinfecting eggs before incubation and the possibility of human paratyphoid carriers contaminating hatcheries.—D. LUKE.

WATANABE, S, MINAMIMOTO, S. & MURASE, N. 1952). [**Studies on salmonellosis in fowls. I. The isolation of** *S. senftenberg* **from dead and under-developed chick-embryos.**]—*24th Rep. Govt. exp. Sta. Anim. Hyg., Tokyo* 1952. pp. 1-5. [English summary.] **1009**

Thirty-eight out of 39 salmonella cultures isolated from 478 dead and under-developed chick embryos were identified as *S. senftenberg,* a type not previously reported from fowls in Japan.—KOGI SAITO.

ALEXANDER, T. M. (1953). **Laboratory diagnosis of brucellosis.**—*Aust. vet. J.* **29**, 281-283. **1010**

A tube agglutination test with serum checked against the standardized international test, and a ring test with milk are used. The ring test is of most value when applied on a herd basis, but is also a useful adjunct in individual animals. The optimum time for the detection of infected cows is during the month following calving.—D. F. STEWART.

MELDRUM, G. K. (1953). **Brucellosis control in Tasmania.**—*Aust. vet. J.* **29**, 275-281. Discussion: pp. 291-292. **1011**

M. outlined the history of the development of the eradication campaign against brucellosis in Tasmania. At present, a test and slaughter policy is adopted where the disease is found in a virtually clean area, or when the herd is situated in an area where the incidence is light and less than 10% of the herd is positive, or where the owner desires it, provided the responsible veterinarian is satisfied that conditions promise success. Vaccination of calves with Strain 19 is adopted where the incidence of infection is high, or where more than 10% of the herd is positive, or where the owner desires it and the responsible veterinarian is satisfied that that it is warranted. M. gave details regarding administration and of the compensation paid to owners.—D. F. STEWART.

STEPHENS, W. H. (1953). **Brucellosis control in lightly infected areas.**—*Aust. vet. J.* **29**, 284-287. **1012**

In areas where there are less than 10% of herds affected with brucellosis, one of the main tasks has been to keep clean herds free from the disease. Two tests at 90 days' interval are used and, if clean, the owner agrees to buy stock only from other accredited herds. The ring test is particularly valuable for checking clean areas. S. discussed the problems of eradicating the disease from an infected herd and of countering the risk of infection to clean herds. In general, where less than 10% of cows in a herd are affected a slaughter policy is adopted and where more than 10%, vaccination of calves with Strain 19. The practical difficulties are accentuated by the almost universal spring calving.
—D. F. STEWART.

BENNETT, S. (1953). **Brucellosis control in heavily infected areas.**—*Aust. vet. J.* **29**, 288-291. **1013**

In areas heavily affected with brucellosis

reliance is placed on Strain 19 vaccination of calves. While in general the results have been good, in some herds the percentage of positive reactors has remained high even after 6–7 years of vaccination of calves and abortions still occur. It is considered that slaughter of reactors is essential to the success of the scheme.

—D. F. STEWART.

BRUHN, P. A. (1953). **On the probability of total eradication of brucellosis in Denmark.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 105-108. [In English. French and German summaries.] **1014**

Brucellosis-free herds, in which milk samples are submitted to the ring test every 4 months, have been established by the elimination of reactors to the blood agglutination and milk ring tests. B. predicted complete eradication of brucellosis in cattle in Denmark by 1961.

—R.M.

I. JACOTOT, H. & VALLÉE, A. (1953). Brucellose expérimentale du rat blanc après inoculation intracardiaque. [**Experimental brucellosis in the white rat following intracardial inoculation.**]—*C. R. Soc. Biol., Paris.* **147,** 1160-1162. **1015**

II. JACOTOT, H. & VALLÉE, A. (1953). Sur la réceptivité expérimentale de la souris blanche aux brucelles. [**Susceptibility of white mice to *Brucella* infection.**]—*Ann. Inst. Pasteur.* **84,** 964-966. **1016**

I. All of 15 rats inoculated intracardially with a bovine vaccinal strain of *Br. abortus* died 35–71 days later. Eighteen out of 20 rats inoculated by the same route with pathogenic strains died 2–23 days later.

II. Intraperitoneal inoculation into mice of both vaccinal and pathogenic strains of *Br. abortus* from cattle, gives variable results according to dosage and the presence or absence of certain additives. Intravenous inoculation is unsatisfactory.—IAN NEWSAM.

JURADO, F. R., MAZZINI, C. A., CEDRO, V. C. F. & TORRE, E. J. (1951). Infección experimental de aves con *Brucella abortus.* [**Experimental brucellosis in fowls.**]—*Proc. Vth Congr. bras. Vet.* São Paulo, 1950. 629-648. [In Spanish. English and French summaries.] **1017**

In 35 fowls inoculated by various routes with a virulent strain of *Br. abortus,* agglutinins were produced in high titre, particularly after subcutaneous and intradermal injections, but there were no clinical or histological signs of the infection in the experimental birds. Nor was it possible to recover the organism ten days after infection.—I. W. JENNINGS.

ROLLE, M. (1953). Über das Wesen der Immunität bei Brucellose. [**The mechanism of immunity to *Brucella* infection.**]—*Tierärztl. Umsch.* **8,** 280-282. **1018**

M. discussed suitable times and methods of vaccinating cattle in the light of findings that immunity to *Br. abortus* infection depends on the resistance of the uterine mucosal cells and that these cells can be stimulated earlier and more readily than other body cells.

—I. W. JENNINGS.

THOMSEN, A. (1951). Blodreaktionerne efter vakcination mod smitsom kalvekastning. [**Agglutination titres in calves after immunization against contagious abortion.**]—*VI. Nord. Veterinärmötet.* [Proceedings of a Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th-11th 1951.] pp. 149-156. [In Norwegian. English summary. Abst. from English summary.] **1019**

T. studied the agglutination and complement-fixation titres in 30 calves, aged $2\frac{1}{2}$ to $15\frac{1}{2}$ months, following vaccination with *Br. abortus* Strain 19 vaccine. The lowest titres and the shortest duration of agglutinins were observed in the youngest group of calves ($2\frac{1}{2}$–3 months old). In Sweden calves are officially vaccinated against contagious abortion at the age of 6–9 months.—R.M.

SCHOENAERS, F. (1953). Vaccination antibrucellique chez la vache au moyen du vaccin M (Huddleson). [**Immunization of cows against brucellosis with Huddleson's mucoid vaccine.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 96-100. [In French. English and German summaries.] **1020**

Out of 36 heifer calves 4–6 months old, 12 were inoculated s/c and 12 were inoculated i/v with *Brucella* M vaccine (mucoid-growth phases of *Br. suis*) prepared by Huddleson [*V.B.* **22,** 2743]. The 12 remaining calves served as controls. Twenty months later, vaccinated cattle were no more resistant than unvaccinated controls to infection by the conjunctival instillation of *Br. abortus* cultures.—R.M.

BURGISSER, H. (1950). Premiers cas de brucellose à Brucella melitensis chez les moutons en Suisse. [*Brucella melitensis* **infection in sheep in Switzerland.**]—*Plaquette* 1950.

Serv. vét. cantonal Inst. Galli-Valerio. pp. 59-66. **1021**

Although *Br. abortus* infection is enzootic in Switzerland it is believed that the country was free from *Br. melitensis* until 1948. In that year numerous abortions occurred in sheep in Valais, but no bacterial examination was made. In 1949, it is believed that five cases (one fatal) occurred in human beings and in 1950, when the disease had spread to Vaudois, *Br. melitnesis* was proved to be the cause by serological and cultural examination. Some 30 flocks (including one of 3 goats) have since been tested and 9 (including the goats) were positive. Although smuggling of foreign sheep undoubtedly occurs in Valais, B. is inclined to attribute the outbreak to a lawfully imported ram, that developed paraplegia and after slaughter was found to have numerous spinal abscesses, probably brucella abscesses. It was noted that ewes which had recently aborted as a result of this infection were in very poor condition, but a year later were apparently thriving.—R. MACGREGOR.

RENOUX, G. (1952). Vaccination préventive du cobaye contre la brucellose expérimentale (Br. melitensis) par l'association de la souche 19 aux anacultures. **[The use of Strain 19 vaccine simultaneously with anacultures of of *Br. melitensis* in the protection of g. pigs against experimental *Br. melitensis* infection.]** —*C. R. Acad. Sci., Paris.* **235,** 986-988. **1022**

One hundred and five g. pigs, allotted to 8 somewhat uneven groups, were vaccinated in the right flank with Strain 19 *Br. abortus* vaccine, and in the left flank, according to group, with varying amounts of a *Br. melitensis* anaculture prepared from a formolized broth culture. After 9 weeks they were challenged by exposure to virulent *Br. melitensis,* and 4 weeks later bled and killed for P.M. examination. Culture media were sown, using a visceral mash.

In the conditions of the experiment Strain 19 vaccine alone was ineffective, and the anacultures alone are known to be unprotective. The association of the two, however, was variously protective against the challenge inoculation, according to the proportions used (5×10^9 *Br. abortus* with 1 ml. of anaculture protected 93%).

The author considered that the use of anacultures together with Strain 19 vaccine might confer on cattle an immunity greater than that provided by vaccine alone.—A.S.

SPINK, W. W. & ANDERSON, D. (1952). **Correlation of a rapid slide-agglutination test (Castaneda) with a tube-agglutination test in screening suspected cases of human brucellosis.** — *J. lab. clin. Med.* **40,** 593-600. [Abst. from authors' summary.] **1023**

A slide-agglutination test using a *Brucella* antigen, prepared as described by Castaneda, was compared over a 5-year period with the tube-dilution agglutination technique. More than a thousand specimens of blood were subjected simultaneously to the two tests. The advantages of the rapid slide antigen were that positive reactions were only occasionally encountered in blood samples containing a low titre of agglutinins, and false-positive reactions were rare. Although the rapid slide-agglutination antigen used in the study was clinically of considerable aid in screening suspected cases of brucellosis, the simultaneous use of a quantitative tube-dilution agglutination technique was found to be necessary.

AVI-DOR, Y. & YANIV, H. (1953). **Relation between changes in the stability of *Pasteurella tularensis* suspensions and in its bacterial population. I. The stability of suspensions of *Pasteurella tularensis* in the presence of electrolytes. II. Mutual influence between salt-agglutinable and salt-nonagglutinable types.** —*J. Bact.* **66,** 1-5; 6-9. **1024**

I & II. Avirulent strains of *Brucella tularensis* are agglutinated by several electrolytes, basic dyes, and basic polyelectrolytes, whereas virulent strains are unaffected. The agglutination of the avirulent strains by N/160 NaCl can be used to determine the quantitative composition of a mixture of the strains. This method showed the appearance of an avirulent strain after 35 subcultures, and the predominating growth of avirulent strains in mixed cultures. An inhibitory excretion from avirulent strains is postulated.—A. SEAMAN.

SCHLOSSBERGER, H. & SCHOOP, G. (1953). Zur Aetiologie des Einschusses der Pferde. **[Examination of sera from horses with sporadic lymphangitis for leptospira antibodies.]**— *Dtsch. tierärztl. Wschr.* **60,** 393-394. **1025**

Sera from 24 out of 29 horses with sporadic lymphangitis contained antibodies against one or more of 9 species of leptospira (agglutination-lysis technique), though cross-agglutination was frequent. Most samples reacted with *L. icterohaemorrhagiae,* one at 1:6,400. The authors suggested that these findings might indicate a connexion between sporadic lymphangitis and periodic ophthalmia.—J. E. SMITH.

SHELDON, W. H. (1953). **Leptospiral antigen demonstrated by the fluorescent antibody technic in human muscle lesions of *Lepto-***

spirosis icterohaemorrhagiae. — *Proc. Soc. exp. Biol., N.Y.* **84,** 165-167. [Author's summary modified.] **1026**

Leptospiral antigen was demonstrated with the fluorescent antibody technique in the muscle lesions of a human patient with *L. icterohaemorrhagiae* infection. This observation indicated that the muscle lesions in Weil's disease are produced by the leptospira. It was also shown that the non-specific staining of human polymorphonuclear leucocytes can be eliminated by absorption of the conjugate with rabbit bone marrow powder.

BROOM, J. C. & GIBSON, E. A. (1953). **Infection rates of *Rattus norvegicus* with *Leptospira icterohaemorrhagiae* in Great Britain. I. A rural area in Carmarthenshire, Wales.**—*J. Hyg., Camb.* **51,** 416-425. **1027**

Leptospira were demonstrated histologically in the kidneys of 82 of 357 rats (*R. norvegicus*) examined in a survey of a rural area in Carmarthenshire. South Wales is one of the four areas in Britain in which Weil's disease in man is most common. The incidence of infection was much higher in adult rats than in young animals. No cases of leptospiral infection were detected in man or domestic animals in the actual area surveyed.—E. G. WHITE.

SCHULZE, W. (1952). Die Leptospirose des Hundes, unter besonderer Berücksichtigung der Speicheluntersuchung und der Symptomatik. **[Examination of saliva in leptospirosis in dogs.]**—*Arch. exp. VetMed.* **6,** 188-192. **1028**

Leptospira were found by microscopic examination under dark-ground illumination in the saliva of ten infected dogs. Undiluted saliva gave negative results: the best method was dilution with 5 parts of saline and centrifuging for 15 min. Saliva was infective for young hamsters by i/p inoculation and their saliva was invariably positive. I/m inoculation of the saliva of infected dogs produced leptospirosis in 5 of 15 healthy dogs. Clinical and laboratory data for 120 infected dogs (118 *L. canicola,* 2 *L. icterohaemorrhagiae*) examined in the clinic during a recent outbreak in Leipzig were given in a table.—E. G. WHITE.

VAN DER HOEDEN, J. (1953). **Leptospirosis of cattle and goats in Israel.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 1-3. [In English. French and German summaries.] **1029**

In an outbreak of *L. grippo-typhosa* infection amongst 95 dairy cattle, the blood of 88 of them contained significant agglutinin titres, but only 12 showed symptoms. Ten of these 12 died as a result of acute interstitial nephritis. *L. grippo-typhosa* was the cause of an outbreak with 50% mortality in goats, and was isolated from the kidneys of several voles (*Microtus guentheri*) which were caught in infected areas. —R.M.

TOPOLNIK, E.-H. & BEGANOVIĆ, A. (1952). Dizenterija janjadi. **[Lamb dysentery in Yugoslavia.]**—*Veterinaria, Sarajevo.* **1,** 298-300. [English summary.] **1030**

Investigations in Macedonia during the spring of 1951 revealed the existence of a severe form of lamb dysentery due to *Cl. welchii,* Type B, causing losses of up to 15% of the lamb crop. —I. MARTINI.

GÜRTÜRK, S. & BOLAT, K. (1953). Enterotoxaemie der Schafe in der Türkei. **[Enterotoxaemia of sheep in Turkey.]**—*Dtsch. tierärztl. Wschr.* **60,** 385-387. **1031**

Cl. welchii Type D toxin was isolated from the content of the small intestine of a sheep from a flock in which sudden deaths had occurred. —H. BEHRENS.

LEMÉTAYER, E., NICOL, L., GIRARD, O., CORVAZIER, R., CHEYROUX, M., ZOTTNER, G. & JACOB, L. (1953). Prophylaxie spécifique ininterrompue du tétanos réalisée chez le cheval dès la naissance. **[Immunization of foals against tetanus.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 57-61. [In French. English and German summaries.] **1032**

Foals were passively immunized during the first few weeks of life by vaccination of the mare with alum-precipitated tetanus antitoxin during the last weeks of pregnancy. This immunity was reinforced by vaccinating the foal with alum-precipitated antitoxin at 5–6 weeks of age and again one year later.—R.M.

STANKO, T. (1952). Zaštitno cepljenje protiv tetanusa. **[Immunization against tetanus.]**—*Vet. Glasn.* **6,** 741-746. [In Croat.] **1033**

S. advised the adoption of active immunization of army horses with tetanus toxoid. Serum should be reserved for the treatment of clinical cases or for the combined vaccination (serum + anatoxin) of wounded horses.—I. MARTINI.

WRIGHT, E. A. (1953). **The effect of the injection of tetanus toxin into the central nervous system of rabbits.**—*J. Immunol.* **71,** 41-44. [Author's summary slightly modified.] **1034**

Tetanus toxin injected into the medulla oblongata of rabbits was approx. a thousand times as lethal (measured by the period of survival) as toxin injected i/v. The effectiveness

of the injected toxin was progressively less as the following sites were employed—lumbar cord; cerebrospinal fluid and cerebral hemisphere (approx. equal); blood stream and gastrocnemius muscle.

STOVER, J. H., JR., FINGERMAN, M. & FORESTER, R. H. (1953). **Botulinum toxin and motor end plate.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 146-147. [Authors' summary modified.] **1035**

Experiments using isolated nerve-muscle preparations from frogs showed that the paralytic action of botulinum toxin was due primarily to a depression of the motor end-plate mechanism and not to a blocking of the terminal nerve fibres.

ANDERSON, A. A., MICHENER, H. D. & OLCOTT, H. S. (1953). **Effect of some antibiotics on** *Clostridium botulinum*.—*Antibiot. & Chemother.* **3,** 521-526. [Spanish summary pp. 554-555.] **1036**

With a view to their possible use in the canning industry, numerous antibiotics were tested *in vitro* for activity against the spores of *Cl. botulinum*. Ten antibiotics were effective in preventing the growth of colonies: in order of potency these were penicillin, terramycin, aureomycin, subtilin, chloramphenicol, methylol gramicidin, laterosporin A, cinnamycin, actinomycin, thiolutin and nisin.—J. EDWARDS.

PRÉVOT, A.-R. & THOUVENOT, H. (1953). Recherches sur la pectinolyse bactérienne anaérobie dans l'intestin de quelques vertébrés. **[The breakdown of pectins by anaerobic bacteria in the intestines of certain vertebrates.]** —*C. R. Acad. Sci., Paris.* **236,** 2125-2126. **1037**

Pectinolytic bacteria were isolated from the intestinal contents of healthy mice, g. pigs and perch, and from pond-silt, by a primary inoculation into *d*-galacturonic media.

All were clostridia, those from the mice and g. pigs were facultative, the others strict, anaerobes.—A. SEAMAN.

JORDAN, F. T. W. (1953). **The incidence of** *Candida albicans* **in the crops of fowls.]**—*Brit. vet. J.* **109,** 527-530. [Author's summary modified.] **1038**

C. albicans was isolated from the crops in 81 of 378 fowls which had died from a variety of causes; crop lesions were found in only 13 of these. In no case was *C. albicans* thought to be the cause of death. The incidence of *C. albicans* was slightly greater in birds on intensive systems of management and there was a markedly higher incidence in older birds.

HUPPERT, M., MACPHERSON, D. A. & CAZIN, J. (1953). **Pathogenesis of** *Candida albicans* **infection following antibiotic therapy. I. The effect of antibiotics on the growth of** *Candida albicans*.—*J. Bact.* **65,** 171-176. **1039**

The authors studied the effects of antibiotics on broth cultures of *C. albicans*. They found that the determination of total cell nitrogen by the micro-Kjeldahl method provided a reliable measure of the growth of the organism. Three different lots of aureomycin hydrochloride when present in concentrations above 0·1 mg. per ml. stimulated the growth of *C. albicans* significantly though penicillin, chloramphenicol, streptomycin and terramycin did not produce a similar effect. The authors discussed possible reasons for the increased incidence of *C. albicans* infection following antibiotic therapy; an increase in food supply following the suppression of bacteria was one possibility, and the invasion of the host's tissues through mucous membranes weakened by nutritional disturbance resulting from antibiotic therapy was another, but the authors considered that in the case of aureomycin at least, their work pointed clearly to a direct stimulation of the growth of *C. albicans*.—A.S.

WILDERVANCK, A., COLLIER, W. A. & WINCKEL, W. E. F. (1953). **Two cases of histoplasmosis on farms near Paramaribo (Surinam); investigations into the epidemiology of the disease.**—*Doc. med. Geogr. Trop.* **5,** 108-115. [In English.] **1040**

The authors gave a detailed account of two cases, one fatal, in children on widely separated farms in Surinam, diagnosed by mouse inoculation tests as inflammatory reticulosis and cellular lymphadenitis respectively caused by a histoplasm [presumably *H. capsulatum,* but no cultures were made], on the basis of the microscopic demonstration and the development of similar bodies in the mice.

The history of one patient revealed that he had habitually played with toads; the spleen in a high percentage of toads examined was found to be infected, as was an engorged *Boophilus microplus* from one of the toads. Insects collected from the farms and from a military camp near one farm, and found to be infected were *Culex quinquefasciatus,* tabanids, houseflies, and cockroaches (*Periplaneta americana*). Three sick fowls from one farm and one healthy fowl and a chick from the other were

found to be infected, as were 3 of 4 pigeons. Mouse inoculation yielded positive findings in one of 16 pigs, 6 months old, in one of 2 dogs, one of 2 cats, a bat (*Vespertilio* sp.), 5 of 7 brown rats and one black rat. The cattle and a horse on one farm all gave negative results, but one calf in poor condition on the other farm gave a positive test.

Of 20 persons on one farm, tested with histoplasmin, 3 gave a positive and 3 a weakly positive reaction; of 8 persons on the other, 3 gave a positive and 4 a weakly positive reaction.

The authors drew attention to the possible role of vectors in the epidemiology of the infection.—F.E.W.

FARRELL, R. L., COLE, C. R., PRIOR, J. A. & SASLAW, S. (1953). **Experimental histoplasmosis. I. Methods for production of histoplasmosis in dogs.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 51-56. [Authors' summary modified.] **1041**

The yeast phase of *H. capsulatum* induced acute, progressive, fatal histoplasmosis in all of 9 healthy dogs when inoculated intratracheally, but no clinical disease in 7 others given the same inoculum by stomach tube. The organism in the mycelial phase produced no clinical evidence of infection in 9 and 10 healthy dogs given intragastric and intratracheal inoculations, respectively. Cortisone treated dogs were susceptible to intratracheal but not to intragastric mycelial phase inoculations. Dogs previously inoculated with the organism in the mycelial phase were resistant to re-infection with the same phase even when given cortisone; they succumbed to challenge with intratracheal yeast phase in the absence of cortisone.

MOORE, E. N. (1953). *Aspergillus fumigatus* **as a cause of ophthalmitis in turkeys.**—*Poult. Sci.* **32,** 796-799. **1042**

Aspergillus fumigatus was isolated from inflammatory lesions of the eyes which occurred in a small percentage of turkey poults in 5 different flocks. M. observed that, in relation to the proportion of males and females, in 10 flocks *A. fumigatus* infection was more common in males than in females.—R.M.

LESBOUYRIES, G. (1925). Actinophytose à *Streptothrix actinomyces* chez le mouton. [**Actinomycosis in the sheep.**]—*Rec. Méd. vet.* **128,** 465-476. **1043**

Actinomyces bovis infection in the sheep runs a course similar to that in cattle, and frequently produces a chronic nodular bronchopneumonia. L. gave details of cultural characteristics and appended photomicrographs of lesions. He failed to set up the disease by inoculating material into white mice and rabbits.
—G. B. S. HEATH.

BOHL, E. H., JONES, D. O., FARRELL, R. L., CHAMBERLAIN, D. M., COLE, C. R. & FERGUSON, L. C., (1953). **Nocardiosis in the dog. A case report.**—*J. Amer. vet. med. Ass.* **122,** 81-85. **1044**

This is said to be the first record of the isolation of *Nocardia asteroides* (*Actinomyces asteroides*) from the dog in North America, although cases in man have been described. The primary lesion probably arose in the left parotid salivary gland, followed by dissemination *via* the blood stream to the heart, lungs, kidneys, spleen and serous membranes.
—E. G. WHITE.

AKÜN, R. (1953). Eine chromoblastomykosisähnliche Pilzkrankheit beim Pferde. [**A fungous disease in horses resembling chromoblastomycosis.**]—*Zbl. allg. Path. path. Anat.* **90,** 294-297. **1045**

An actinomycosis-like granuloma removed from the nasal septum of a Turkish horse contained colonies of a fungus like that which causes chromoblastomycosis in man. No cultural examination was made.—E. G. WHITE.

JONES, T. C. (1953). Einige Pilzerkrankungen bei Tieren in USA. [**Some fungous diseases of animals in the U.S.A.**]—*Dtsch. tierärztl. Wschr.* **60,** 512-514. **1046**

A short account of *Histoplasma capsulatum* infection in dogs and rodents, *Coccidioides immitis* infection in cattle, sheep and dogs, *Blastomyces dermatitidis* infection in horses and dogs, *Rhinosporidium* infection in horses, and *Cryptococcus neoformans* mastitis in cattle.
—R.M.

SEDDON, H. R. (1953). **Diseases of domestic animals in Australia. Part 5. Bacterial diseases. Vols. I & II.** pp. viii + 1-232 & pp. vi + 233-464. Department of Health, Commonwealth of Australia, Service publications (Division of Veterinary Hygiene) Nos. 9 & 10. **1047**

This further monograph in this series [see also *V.B.* **21,** 2652; **22,** 158 & 1051 & **23,** 1968 & 2042] deals with bacterial diseases of domestic animals in Australia. It is comprehensive and will be of great value both in Australia and elsewhere. All available information has been collected regarding the history, incidence and distribution of each disease, and of control measures. The information is dealt with ade-

quately, yet concisely. Where appropriate, details are given of legislative measures taken to control the spread of the disease.

Numerous tables, maps and references support the text, and a satisfactory index is included. The publication is printed clearly and firmly bound.—D. F. STEWART.

WESTERMARCK, H. W. (1953). **Veterinary institutions and control of bovine tuberculosis, infectious abortion and mastitis in Finland. Parts I & II.**—*M. & B. vet. Rev.* **4,** 115-120; **5,** 3-8. **1048**

I & II. W. described the organization and activities of the state and municipal veterinary services in Finland. Veterinary students take a preclinical course in Helsinki and complete their training in Sweden or Norway.

TB. in cattle is controlled by the use of the intradermal tuberculin test. The incidence of reactors has remained at about 3% since 1913 and W. attributed this to infection with the human type of tubercle bacillus. Bovine type TB. in cattle has been eradicated.

Brucellosis in cattle is a notifiable disease and is being eradicated by means of a slaughter policy based on the blood agglutination test. Bovine mastitis is also notifiable and infected cows may not be sold except for slaughter. Intramammary penicillin is widely used in the treatment of streptococcal mastitis.

—E. A. GIBSON.

EDWARD, D. G. ff (1953). **Organisms of the pleuropneumonia group causing disease in goats.**—*Vet. Rec.* **65,** 873-874. **1049**

E. drew attention to the need for careful examination of all pleuropneumonia-like organisms isolated from goats, on account of confusion which had previously occurred between two organisms of that group which differ widely both serologically and in their cultural and biochemical properties. A pleuropneumonia-like organism isolated from a goat which died of infectious cellulitis, which is endemic in parts of Greece and had been regarded as a hyperacute form of caprine contagious agalactia, was found to resemble the organism of caprine contagious pleuro-pneumonia.

He suggested that the organism causing caprine contagious pleuro-pneumonia may be a variety of the same species as the organism of bovine contagious pleuro-pneumonia, and that the nomenclature *Asterococcus mycoides* var. *capri* and *A. mycoides* var. *bovis* would be appropriate for these organisms.—F.E.W.

DUBOS, R J. (1953). **Effect of ketone bodies and other metabolites on the survival and multiplication of staphylococci and tubercle bacilli.**—*J. exp. Med.* **98,** 145-155. [Abst. from author's summary.] **1050**

An account of a study of the fate of staphylococci and tubercle bacilli resuspended in aqueous media containing 0·5% serum albumin at various slightly acid reactions in order to approximate conditions probably encountered by pathogens in inflammatory areas and in the intracellular environment of the leucocytes after phagocytosis.

Viability at a given pH was markedly influenced by the composition of the medium, being decreased in the presence of lactic, acetic, propionic, and butyric acids and increased in the presence of certain ketone bodies such as dihydroxyacetone and pyruvic, β-hydroxybutyric, α-ketoglutaric, and oxalacetic acids.

The presence of ketone bodies afforded some protection against the bactericidal effect of lactic and acetic acids at acid reactions.

The minimum and the optimum pH for growth were higher in the presence than in the absence of lactic, acetic, propionic, and butyric acids. In contrast, in the presence of ketone bodies microbial multiplication occurred even at pH 5·3 or lower.

D. discussed these findings in relation to the high susceptibility to infection which is often associated with ketosis of various aetiology.

ANDO, K., SHIMOJO, H. & TADOKORO, I. (1952). **A new method of preparing bacterial vaccines by the use of chrome-salt (detoxified vaccine —chrome vaccine).**—*Jap. J. exp. Med.* **22,** 485-492. [In English.] **1051**

The authors described a method of preparing stable and effective vaccines with low toxicity by treating the bacterial suspension with chrome-salt as in the process of leather tanning. They reported results obtained with typhoid, dysentery and pertussis vaccines in laboratory animals and in human volunteers.

—F.E.W.

See also absts. **1259** (ruminal microflora); **1274** (control of bubonic plague by rodenticides); **1324** (streptococcal decapsulation test for detection of hyaluronidase activity in parasites); **1326** (report, Union of South Africa); **1327** (report, India); **1329** (report, Northern Rhodesia); **1330** (report, Swaziland); **1331** (report, Sierra Leone); **1332** (report, Nyasaland Protectorate); **1333** (report, Uganda Protectorate); **1335** (report, Tanganyika); **1336** book, bacteriology); **1337** (book, TB. of the bovine udder).

DISEASES CAUSED BY PROTOZOAN PARASITES

FIENNES, R. N. T.-W. (1953). **The results of autopsies on trypanosome-infected cattle.**—*Brit. vet. J.* **109**, 511-520. **1052**

An account of the P.M. findings in 18 cattle which had been exposed to tsetse flies at Kiboko in Kenya. Of these 8 had been protected with antrycide, 6 with dimidium, and 4 were untreated controls; all were examined immediately after slaughter. The most striking differences between the treated animals and the controls were in the spleen, lymph nodes and the haemolymph nodes. In both the former groups there was splenomegaly, the lymph nodes were fibrous and there was general hyperplasia of the haemolymph nodes

—F.E.W.

FORD, E. J. H., WILMSHURST, E. C. & KARIB, A. A. (1953). **Studies on ethidium bromide. II. The treatment of early *T. congolense* infections in cattle.**—*Vet. Rec.* **65**, 907-908. [Authors' summary copied *verbatim*.] **1053**

Treatment of 35 cattle, syringe infected with *T. congolense,* with ethidium bromide at levels ranging from 0·125 to 1·5 mg. per kg. cleared the blood of trypanosomes within 48 hours. There were two relapses in the 0·125 mg. per kg. group, and one in the 0·5 mg. per kg. group. Animals treated with 0·25, 1·0 and 1·5 mg. per kg. remained negative to daily blood examinations over a period of 16 weeks. There were five deaths attributable to intercurrent disease and seven untreated controls died from trypanosomiasis within 10 weeks.

WILLIAMSON, J. (1953). **Observations on the dehydrogenase activity of normal and drug-resistant strains of *Trypanosoma rhodesiense*.**—*Exp. Parasit.* **2**, 348-357. [Author's summary modified.] **1054**

W. described a method for the photometric estimation of the dehydrogenase activity at 25°C. of washed suspensions of *T. rhodesiense,* and outlined the conditions necessary for reproducible results. Rabbit serum had a marked effect on the glucose dehydrogenase activity of washed *T. rhodesiense* suspensions; activity was promoted by concentrations as low as 0·0004% in the presence of of *M*/100 glucose. A strain of *T. rhodesiense* fully resistant in mice to sodium *p*-melaminylphenylarsonate differed markedly from the normal parent strain in respect of activation of 6 out of 10 substrates tested.

HOLLÓ, A. (1953). **Preparation of trypanosome-antigen of high titer from dogs. [Dourine.]**—*Acta vet. hung.* **3**, 135-142. [In English. Russian summary.] **1055**

H. recorded attempts to increase the amount of trypanosome-substance obtainable from the blood of infected dogs, for use as an antigen in a c.f. test for dourine. The best results were obtained by splenectomizing the dogs before the i/v injection of blood infected with *T. equiperdum,* and dosing with an antihistamine drug (ahistan) during the development of the infection.—L. P. JOYNER.

MEYERS, W. M. & LYSENKO, M. G. (1953). **Effect of sodium salicylate treatment on antibody titers in rats infected with *Trypanosoma lewisi*.**—*Proc. Soc. exp. Biol., N.Y.* **84**, 97-98. [Authors' summary modified.] **1056**

Daily treatment with sodium salicylate reduced the concentration of circulating antibody in rats infected with *T. lewisi.* The authors discussed possible modes of action.

KEPPIE, A. A. N. (1953). **Modified course of *T. congolense* infection in mice given diets with milk casein.**—*Brit. med. J.* Oct. 17th. 853-857. [Author's summary copied *verbatim*.] **1057**

Mice fed on five different diets were experimentally infected with *T. congolense.* Parasitaemia with acute followed by chronic infection developed as expected in mice fed on two of the diets, which were diets of the type normally employed in laboratories for the rearing and maintenance of mice. In mice fed on three of the diets in which milk casein was the source of protein the parasitaemia was either delayed or prevented.

Since one of the two " normal " diets contained milk but permitted normal development of the infection it might appear that failure of the incomplete diets to nourish the parasite is the explanation of the observed results, rather than that milk itself contains an antiparasitic agent.

MACKERRAS, M. J. (1953). **Suppression of *Plasmodium berghei* in rats on a milk diet.**—*Aust. J. Sci.* **16**, 24-27. **1058**

In 1952 the feeding of cows' milk to rats was reported to suppress infections of *Pl. berghei* in that species. M. reported confirmation of this finding.—K. G. JOHNSTON.

I. REFAAT, M. A. & BRAY, R. S. (1953). **Milk and protozoal infections.** [Correspondence.]—*Brit. med. J.* Nov. 7th, 1047. **1059**

II. MAEGRAITH, B. G. (1953). **Milk and proto-**

zoal infections. [Correspondence.]—*Ibid.* 1047-1048. **1060**

I. The feeding of a milk diet did not suppress *Trypanosoma rhodesiense* in rats, but it controlled *Plasmodium berghei* immediately. Two per cent. casein hydrolysate in 50% glucose suppressed *Pl. berghei* in mice, but multiplication persisted for six days. This effect was reversed by *p*-aminobenzoic acid. The authors are not convinced that the inhibition of protozoan infections by milk is wholly due to the lack of this acid or other essential metabolites in milk.

II. The feeding of a milk diet did not suppress *T. rhodesiense* in mice or *Babesia canis* in puppies. Other substances besides *p*-aminobenzoic acid may be concerned in suppression of malaria parasites in hosts fed on milk.—D. POYNTER.

BLANC, G. & BRUNEAU, J. (1953). Contribution à l'étude experimentale de la leishmaniose spontanée du cobaye. [**Leishmaniasis of g. pigs, caused by** *Leishmania enriettii.*]—*Arch. Inst. Pasteur, Maroc.* **4,** 405-410. **1061**

In g. pigs inoculated i/p with *L. enriettii* there was, in addition to inflammation of the tunica vaginalis, an enlargement of the spleen and sometimes of the liver. Parasites were recovered from the inguinal lymph nodes. It was not possible to infect the foetus of g. pig or rabbit by direct inoculation. Unsuccessful attempts were made at transmission using ixodid ticks. Cultures were grown satisfactorily on chick embryos.—JAS G. O'SULLIVAN.

JOYNER, L. P. (1953). **The effect on the growth rate of turkeys of 2-amino-5-nitrothiazole in the treatment of histomoniasis.**—*Vet. Rec.* **65,** 903-906. [Abst. from author's summary.] **1062**

When varying amounts of 2-amino-5-nitrothiazole were added to the diet of young turkeys, the weight increase of those receiving 0·1 and 0·2% was significantly reduced; those receiving 0·4% lost weight. With increasing amounts of drug the food consumption was correspondingly reduced. The growth-retarding effects could not be accounted for by a lack of palatability. When the drug was withdrawn, weight gains were comparable with those of normally fed poults of the same age, and their weight was normal after 18 days. No toxic effects could be demonstrated when 0·05%, the prophylactic dosage of the drug usually recommended, was incorporated in the food for 3 months. The max. tolerated oral dose was 20 mg. per 100 g. body wt. Single doses of 50 and 100 mg. per 100 g. killed a proportion of the birds within 4–7 days. Degeneration of the kidneys was the main lesion.

TESTI, B. (1953). La coccidiosi negli ovini. [**Coccidiosis in sheep.**]—*Zooprofilassi.* **8,** 363-367. **1063**

A. general description of the disease. No new knowledge.—I. W. JENNINGS.

LANDERS, E. J. (1953). **The effect of low temperatures upon the viability of unsporulated oöcysts of ovine coccidia.**—*J. Parasit.* **39,** 547-552. [Author's summary modified.] **1064**

Prolonged exposure to temperatures of −19° and −25° C. is innocuous for the unsporulated oocysts of *Eimeria arloingi, E. ninakohl-yakimovi,* and when properly conditioned, they can be stored at −30° C. for 24 hours without decrease in viability.

A comparison of the air and ground surface temperatures at Laramie, Wyoming during five winters revealed that the soil surface temperature rarely, if ever, reached the extremes of low fluctuation which occurred in the air masses; probably therefore the unsporulated oocysts of these species would not normally be killed by the lower winter temperatures in that area.

ITAGAKI, K. (1952). [**Studies on coccidiosis in fowl. I. On the infection. II. On the biological characteristics of coccidium and its difference of species.**]—*Jap. J. vet. Sci.* **14,** 83-94 & 95-104. [English summary.] **1065**

I. In fowls naturally infected with coccidiosis, the death rate was 2–3% in adults and more than 80% in chickens. The author found oocysts in the intestines of domestic rats (*Rattus rattus*) and concluded that rats are important vectors of the disease.

II. Histopathological changes are not confined to the intestinal mucosa but extend to all organs. Merozoites were always detected in haemorrhagic areas.—KOGI SAITO.

BRACKETT, S. & BLIZNICK, A. (1952). **The reproductive potential of five species of coccidia of the chicken as demonstrated by oocyst production.**—*J. Parasit.* **38,** 133-139. [Abst. from authors' summary.] **1066**

The authors studied the oocyst production of *Eimeria tenella, E. necatrix, E. acervulina, E. brunetti* and *E. maxima* in groups of susceptible chickens. The number of oocysts produced per oocyst inoculated varied from species to species. With very mild initial infections (about 50 oocysts per bird) *E. tenella* and *E. brunetti* yielded several hundred thousand oocysts for each oocyst inoculated. The other three species yielded progressively fewer

oocysts in descending order: *E. acervulina, E. necatrix* and *E. maxima. E. maxima* produced less than a tenth as many oocysts as *E. tenella* and *E. brunetti.*

More severe initial infections did not necessarily yield progressively larger numbers of oocysts. This relationship varied from species to species. The greatest number of oocysts (in millions) produced per bird by the different species was approx.: *E. acervulina,* 430; *E. tenella,* 65; *E. brunetti,* 55; *E. maxima,* 36; and *E. necatrix* 12.

DAUGHERTY, J. W. & HERRICK, C. A. (1952). **Cecal coccidiosis and carbohydrate metabolism in chickens.**—*J. Parasit.* **38,** 298-304. [Abst. from authors' summary.] **1067**

There is present in the caecum of chickens during the acute stage of coccidiosis a substance capable of reducing the capacity of the brain to utilize glucose. This substance does not affect the utilization of hexose-diphosphate under the same conditions. Muscle from infected chickens had a reduced respiratory quotient. This suggests that the physiological events associated with caecal coccidiosis in chickens are induced by an interference with normal phosphorylative carbohydrate utilization.

NAUCK, E. G. (1953). Immunitätsprobleme bei Malaria. **[Immunity problems in malaria.]**—*Z. Tropenmed. u. Parasit.* **4,** 285-298. **1068**

A critical review on malarial immunity in man, other mammals, and birds, covering literature up to 1952 with some 70 references. N. discussed natural resistance, acquired immunity and premunition, the influence of exo- or endo-erythrocytic development of parasites, homologous and heterologous immunity, cellular and humoral defence reactions, the presence of antibodies in the serum, the function of the macrophage system (r.e.s.) and splenectomy, therapy and immunization, and attempts at active immunization.—F.E.W.

SIMITCH, T. & NEVENITCH, V. (1953). Babesiella bovis (Babès, 1888) et Babesiella berbera, Sergent, Donatien, Parrot, Plantureux et Rougebief, 1924, sont-ils synonymes? **[Are *Babesia bovis* and *B. berbera* synonyms?]**—*Arch. Inst. Pasteur, Algér.* **31,** 91-101. **1069**

The classification of the group of " small piroplasms " is often considered to be unsatisfactory. The authors, working on the Yugoslavian side of part of the Danube basin concluded from studies of morphology and pathogenicity that the species known as *B. berbera* is identical with *B. bovis.* The latter species was originally also described in the Danube basin by Babès in a district situated near to the region in which the present authors have been working.—L. P. JOYNER.

DARRASPEN, E. & FLORIO, R. (1953). Contribution à l'étude du traitement de la piroplasmose, chez le chien. **[Treatment of piroplasmosis in dogs.]**—*Cah. Méd vét.* **22,** 179-183. **1070**

The authors discussed the use of a number of drugs in canine piroplasmosis; the most efficacious were considered to be zothelone (acaprin) and lomidine (diamidino-diphenoxypentane), the latter being administered at the rate of 4 mg./kg. and given i/m.

—JAS G. O'SULLIVAN.

HIGNETT, P. G. (1953). *Theileria mutans* **detected in British cattle.**—*Vet. Rec.* **65,** 893-894. **1071**

Organisms considered to be *Th. mutans* were detected in blood films from one of 6 cattle that had been inoculated with blood from a case of redwater (*Babesia bovis* infection). The cattle were born and reared in Britain and had not been in contact with infection from abroad. The animal in question had been inoculated 9 months previously with a suspension of *Ixodes ricinus* taken from a case of redwater and H. suggested that this was the source of the theileria.

The organism has been transmitted, along with *B. bovis,* to 15 other cattle in 5 series of passages. The period between inoculation and detection of parasites in blood films in these experiments has been 4–5 days in the case of *B. bovis* and " some days " later in the case of the unusual parasite. *B. bovis* persisted in the blood until about the 12th day while the other parasite persists for 6–8 weeks and often much longer and its presence is not accompanied by any evidence of illness. [There is no mention of any examination having been made of lymph nodes for schizonts (Koch's " Blue Bodies "). The diagnosis rests upon the morphology of the organisms as seen in the erythrocytes.]—JAS. G. O'SULLIVAN.

SPLITTER, E. J. & MILLER, J. G. (1953). **The apparent eradication of the anaplasmosis carrier state with antibiotics.**—*Vet. Med.* **48,** 486-488. [Authors' summary modified.] **1072**

Anaplasmosis carrier infection was apparently eradicated in four known carriers and possibly in four others by daily antibiotic therapy. Terramycin (i/v or i/m) was used successfully at 5 mg./lb./day in single or divided doses for 12 to 14 days. Aureomycin

(i/v) was used at the rate of 15 mg./lb./day in single doses for 16 days.

Blood from these carriers failed on sub-inoculations to transmit anaplasmosis to calves for maximum periods of from 60 to 365 days following therapy. All the treated animals reacted negatively to the anaplasmosis complement-fixation test 35 or more days after prolonged antibiotic administration. One animal tested was found fully susceptible to acute anaplasmosis when re-infected 365 days after therapy.

PEARSON, C. C., BROCK, W. E. & KLIEWER, I. O. (1953). **Studies on use of biologics in control of anaplasmosis,**—*Vet. Med.* **48,** 435-437. **1073**

Vaccines made from eight different tissues failed to immunize susceptible cattle against anaplasmosis. Lyophilized whole blood from an acute case was ineffective, as was blood from a carrier, treated *in vitro* with penicillin and aureomycin, either separately or together. Blood from a carrier injected 15 min. earlier with aureomycin or penicillin also failed to immunize. Administration of bovine γ-globulin had no effect on resistance.—W. S. MARSHALL.

ROSSI, P. & TRIOZON, F. (1953). Essais de culture d'une souche bovine française d'Anaplasma marginale. [**Attempted cultivation of a French strain of** *A. marginale.*]—*Bull. Soc. Path. exot.* **46,** 312-315. **1074**

Several drops of a 30% glucose solution were added to citrated or heparin-treated blood from cows with *A. marginale* and incubated at 37°C. Although there was an initial increase of parasitized corpuscles, less with heparin than with citrate, their number declined over the course of a week.—M. L. CLARKE.

SANGER, V. L., CHAMBERLAIN, D. M., CHAMBERLAIN, K. W., COLE, C. R. & FARRELL, R. L. (1953). **Toxoplasmosis. V. Isolation of toxoplasma from cattle.**—*J. Amer. vet. med. Ass.* **123,** 87-91. **1075**

Toxoplasms, similar morphologically to organisms of human, canine and porcine origin, were demonstrated histologically in cattle from widely separated herds in Ohio. Liver lesions in a calf at birth indicated that infection was acquired *in utero.* The authors described the symptoms of naturally acquired and experimentally induced infections. Toxoplasms were found in milk, carcass meat, sputum and faeces.—S. F. M. DAVIES.

COLE, C. R., DOCTON, F. L., CHAMBERLAIN, D. M., SANGER, V. L., PRIOR, J. A. & FARRELL, R. L. (1953). **Toxoplasmosis in domestic animals.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 401-405. [In English. French and German summaries.] **1076**

The authors investigated outbreaks of toxoplasmosis in cattle, pigs, and dogs in Ohio, U.S.A. Out of 1,944 dogs examined at a clinic 76 reacted to a toxoplasmin test; of these, 16 had significant antibody titres, as demonstrated by the Sabin-Feldman test. Toxoplasms were isolated from the milk and foetuses of infected cows, sows, and bitches. Three cases of toxoplasmosis in human beings in contact with infected dogs were described.—R.M.

SCHMIDT-HOENSDORF, F. (1953). Toxoplasmen (Züchtung und Biologie, mit Film). [**Growth and biology of** *Toxoplasma.*]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 399-400. [In German. English and French summaries.] **1077**

S. described the growth and motility of *Toxoplasma* in chick embryo tissues. The paper was illustrated by a film.—R.M.

JACOBS, L., MELTON, M. L. & COOK, M. K. (1953). **Experimental toxoplasmosis in pigeons.**—*Exp. Parasit.* **2,** 403-416. [Abst. from authors' summary.] **1078**

The authors gave data on the parasitaemia and antibody response in pigeons infected with 3 strains of *Toxoplasma,* of varying virulence. With the virulent RH strain, which killed about 45% of the birds infected with it, a high parasitaemia was obtained regardless of the route of inoculation. It remained high for about 2 weeks or until death; dilutions up to 1:10,000 of the blood of these birds were infective for mice. With the less virulent strains lower parasitaemia was obtained; there appears to be a correlation between the pathogenicity of the parasite, in any host, and its spread *via* the blood stream.

Parasitaemia does not continue after the antibody titre becomes high. Antibody titre in pigeons as measured in the dye test, drops fairly rapidly and antibody may be undetectable less than 18 months after infection, though parasites were demonstrable in the brain of some infected birds up to 33 months. Toxoplasms may remain in brain pseudocysts for long periods without stimulating antibody production.

HOLZ, J. (1953). Über die Möglichkeit der Infektion des Menschen mit Sarkosporidien unserer Schlachttiere. [**Susceptibility of man to sarcosporidia: possibility of infection from slaughter animals.**]—*Mh. Tierheilk.* **5,** 287-290. **1079**

A review of the literature preliminary to

later experimental research, and including a host list with references. Infection of animals is relatively high, *e.g.* in the Berlin-Spandau abattoir 40% of sheep and 25% of pigs show macroscopic lesions. The peroral route is probably the easiest mode of infection.

—M. L. CLARKE.

ADAM, K. M. G. (1953). *In vivo* **observations on the ciliate protozoa inhabiting the large intestine of the horse.**—*J. gen. Microbiol.* 9, 376-384. [Author's summary modified.] **1080**

The ciliate population of the large intestine of the horse shows large, daily variations, particularly in the ventral colon. Two species, *Cycloposthium edentatum* and *C. dentiferum,* became established in the large intestine after passage through the stomach and small intestine. The introduction of new species into the ventral colon caused significant changes in the fauna of that part of the gut.

See also absts. **1239** (toxicity of phenanthridinium compounds); **1259** (ruminal microfauna); **1328** (report, Nigeria); **1329** (report, Northern Rhodesia); **1330** (report, Swaziland); **1331** (report, Sierra Leone); **1332** (report, Nyasaland Protectorate); **1333** (report, Uganda Protectorate); **1335** (report, Tanganyika).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

CHILDS, T. (1953). **Procedures leading to eradication of the first outbreak of foot-and-mouth disease in Canada.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 217-223. [In English. French and German summaries.] **1081**

C. described the control of the first outbreak of F. & M. disease in Canada, which occurred during the winter of 1951-52. The infection was introduced by an immigrant from Germany, and for two months was diagnosed as vesicular stomatitis, until more apparent symptoms and lesions led to a laboratory confirmation of F. & M. disease. Winter conditions made the burial of carcasses and disinfection extremely difficult, but control measures, slaughter of stock on infected farms, quarantine and disinfection, were successful.—R.M.

PAARMANN, E. (1953). Zur Pathologie der Spätschäden der Maul- und Klauenseuche. **[Pathology of the sequelae to foot and mouth disease.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 213-216. [In German. English and French summaries.] **1082**

An account of P.M. examination of the heart in 265 clinical cases of myocarditis which occurred in cattle weeks or months after recovery from F. & M. disease. Macroscopic changes were absent in the heart, but in 95% there were microscopic changes consisting of myocarditis with scar formation and lymphocytic infiltration.—R.M.

RICE, C. E. & BROOKSBY, J. B. (1953). **Studies of the complement-fixation reaction in virus systems. V. In foot and mouth disease using direct and indirect methods.**—*J. Immunol.* **71,** 300-310. [Authors' summary modified.] **1083**

In direct complement-fixation tests, the quantitative behaviour of F. & M. disease virus antigens with hyperimmune g. pig sera was found to be similar to that noted in a number of viral antigen-antibody systems previously studied. The relative complement-fixing capacity of several FMD antigens with different g. pig antisera was estimated from the slope of the complement-antigen regression lines. Such a comparison showed a much closer resemblance in the complement-fixing behaviour of the strain of A type virus isolated during the 1952 Canadian outbreak and an A type strain isolated in England in Nov. 1951, than either displayed towards a stock A strain, No. 119, that had been maintained for many years by cattle passage.

Sera of only two of the convalescent cattle tested, fixed g. pig complement with FMD virus antigen. The relatively rapid development of inhibitory or neutralizing activity in the sera of cattle infected with FMD virus could be detected, however, by an indirect c.f. method with FMD antigens. Blood from the same animals before infection did not show this activity. In lower dilutions, these convalescent sera blocked or neutralized the complement-fixing activities of both heterologous and homologous type antigens. In higher serum dilutions the inhibitory activity extended only to virus of the homologous type.

The direct c.f. test has proved of limited value for demonstrating antibody in the sera of cattle convalescent from F. & M. disease since only a small proportion of cattle develop complement-fixing activity with FMD antigens. These preliminary studies suggested that the indirect c.f. test, particularly if used in parallel with one of the direct form, merits further investigation from this practical standpoint.

WALL, H. (1953). Der Nachweis der Maul- und Klauenseuche beim Menschen. **[Diagnosis of**

foot and mouth disease in man.]—*Z. Tropenmed. u. Parasit.* **4**, 26-31. **1084**

Infection of laboratory workers by F. & M. disease virus may be verified with relative ease, but it is difficult to obtain verification of suspected cases seen in rural practice, owing to the difficulties of obtaining and examining blood samples, and the apprehension of the patient that he or she may be ostracized as a carrier of the disease.

W. reported three cases of suspected F. & M. disease in human beings, in which the symptoms were fever and vesicles of the tongue or fingers and toes. Complement-fixation tests were positive in two cases, and g. pig neutralization tests positive in the third case. Attempted transmission of the disease by vesicle material from one case to a bull failed.—R.M.

GIRARD, H. & MACKOWIAK, C. (1952/53). Le vaccin trivalent dans la prophylaxie de la fièvre aphteuse. **[Trivalent vaccine in the prophylaxis of foot and mouth disease.]**.—*Bull. Soc. Sci. vét., Lyon.* **54 & 55**, 171-173. Discussion pp. 173-175. **1085**

An account of two experiments on cattle using trivalent vaccines. In the first series carried out on 17 animals, and using a vaccine containing types O_2, A_5 and C, there was one breakdown to type O and one breakdown to type C. In the second experiment using a foreign vaccine a 3% failure against type A was observed.—G. V. LAUGIER.

I. GIRARD, H. & MACKOWIAK, C. (1953). La culture du virus aphteux au stade industriel. **[Mass production of foot and mouth disease virus.]**—*Rev. Immunol.* **17**, 224-238. **1086**

II. GIRARD, H., MACKOWIAK, C., HIRTZ, J. & CAMAND, R. (1953). Étude biologique des fractions de la lymphe aphteuse bovine séparées par électrophorèse. **[Electrophoresis of foot and mouth disease lymph.]**—*Ibid.* 239-251. **1087**

I. Using the technique described by FRENKEL [*V.B.* **22**, 387; **23**, 877, 2517 and 2813] for the mass production of F. & M. disease virus, the authors had produced nearly six million doses of vaccine. They confirmed the value of the method. Various strains could be adapted; and epithelium could be collected and transported economically even over long distances by air if necessary.

II, The authors described an improved method of electrophoretic fractioning of F. & M. disease lymph and a quantitative method of complement fixation which was developed to facilitate interpretation. They gave tabulated results. Virulent lymph was split into albumin, and α, β and γ globulins. The infectivity and complement-fixing power of each fraction was shown. Slight differences were observed between O_2, A_5, and C viruses: these were attributed to slight differences in chemical composition. No effective separation between infective antigen and complement-fixing antigen was achieved.—G. V. LAUGIER.

STROZZI, P. & RAMOS-SACO, T. (1953). **Teat vesicles as primary and almost exclusive lesions in an extensive outbreak of vesicular stomatitis (New Jersey strain) in milking cows.**—*J. Amer. vet. med. Ass.* **123**, 415-418. **1088**

The authors described an atypical form of vesicular stomatitis occurring in Peru with primary lesions in the teats. Differential diagnosis, clinically, from F. & M. disease but not from cow pox is possible. Serological and animal inoculation tests are the only precise diagnostic aids. The outbreak was extensive and the economic loss considerable.—W. S. MARSHALL.

HENDRICKS, S. L. & GARRETT, H. U. (1953). **Rabies in Iowa.**—*J. Amer. vet. med. Ass.* **122**, 474-478. **1089**

A reservoir of rabies exists in wild animals in Iowa and skunks may be the principal species; " skunk " includes the striped skunk and the " small spotted skunk (civet cat) ".

—F. B. LEECH.

GRIEM, W. (1953). Die Verwendung der weissen Maus zur Tollwutdiagnose. **[Use of mice for the diagnosis of rabies.]**—*Mh. VetMed.* **8**, 267-271. **1090**

Intracerebral injections into groups of ordinary white mice of 0·03 ml. of an emulsion with antibiotics of the brain of 36 animals of various species suspected of rabies resulted in 24 positive results (75·6% of the mice died of rabies). A positive result was obtained between the 6th–20th day, but Negri bodies were demonstrable also in two mice which died after 84 and 107 days respectively. Negri bodies were found in smear preparations of the brains of all the rabid mice examined, but not in 17% of histological sections.—A. ACKROYD.

PAPACHRISTOPHILOU, F. (1953). **[Control of rabies in dogs, in Greece, with avianized vaccine.]**—*Delt. Hellen. kten. Hetair.* **2**, 404-409. [In Greek. French summary.] **1091**

The total dog population (2,842) of the island of Zante, where a number of outbreaks of rabies occurred during 1946-51, was vaccinated with " Lederle " avianized rabies vac-

cine in July 1952. Since then no further outbreaks had occurred. Similar successful rabies vaccination was carried out in Athens on 23,000 dogs.

At the time of vaccination an attempt was made to control *Echinococcus* infestation with nemural.—T. T. VANTSIS.

BÉQUIGNON, R., GUICHARD, A. & VIALAT, C. (1953). Apparition de corps de Negri dans les lésions provoquées par le virus fixe (souche Louis Pasteur) sous l'action de la hyaluronidase. [**Development of Negri bodies under the action of hyaluronidase in "fixed" rabies virus infections.**]—*Ann. Inst. Pasteur.* **85,** 263-264. **1092**

When street virus becomes fixed, most strains no longer form typical Negri bodies. On addition of normal canine saliva or of hyaluronidase to the Louis Pasteur strain of fixed virus (isolated in 1882), it regained the characteristics of street virus, including virulence to rabbits when given subcutaneously and the ability to produce typical Negri bodies. These characteristics were retained in the course of successive passages through rabbits by the cerebral route; the modified strain kills the rabbit in 16 days. —F. B. LEECH.

REMLINGER, P., BAILLY, J. & HADJI, A. (1953). Contribution à l'étude du virus rabique Flury. [**Studies with Flury rabies virus.**]—*Bull. Acad. nat. Méd.* **137,** 340-342. **1093**

A preliminary note on studies with the Flury virus, using a lyophilized sample from the U.S.A. In dogs, the response resembled that obtained with fixed virus. Following a second inoculation of Flury virus, dogs failed to react even to severe challenge with fixed virus. Rabbits had little susceptibility, even to intracerebral inoculation: the most striking response was a brief transitory epileptiform crisis after 12–16 days. G. pigs were highly susceptible, developing exclusively the paralytic form. Cats also responded with the paralytic form. Ducks and geese were highly susceptible, but not fowls nor pigeons. White rats and mice were also highly susceptible. Negri bodies were not demonstrable in any of the mammalian species examined, though lesions of encephalitis were clear-cut and there was perivascular cuffing formed by accumulation of lymphocytes and occasionally disappearance of the vascular endothelium. Cross-immunity tests between the Flury virus and the "classical" strains of rabies virus are in progress.—F.E.W.

DONATIEN, A., POUL, J. & RAMPON, R. (1953). Éssais de vaccination du chien par un virus rabique atténué. [**Vaccination trials in dogs with an attenuated rabies vaccine.**]—*Arch. Inst. Pasteur Alger.* **31,** 71-74. **1094**

A single injection of a virus attenuated by storage between 2° and 4° C. in glycerin and formalin, appeared to confer on dogs a satisfactory degree of immunity against rabies. This immunity appeared to be somewhat greater, dose for dose, than is conferred by the Plantureux vaccine.—F. B. LEECH.

HECKE, F. (1953). Postvakzinale Lähmungen nach Wutschutzimpfungen bei Hunden und ihre allergische Pathogenese. [**Paralysis in dogs after rabies immunization.**]—*Wien. tierärztl. Mschr.* **40,** 266-279. [English, French and Italian summaries.] **1095**

An account of observations based on the vaccination of almost 60,000 dogs. The injections in 1950 were carried out with carbol glycerin vaccine; cases of rabies occurred and the method was not considered safe. In 1951, most of the inoculations were done with a formalin-killed adsorbate vaccine, made from horse-brain; no rabies or fixed infections occurred, but post-vaccinal paralysis, due to encephalomyelitis, was frequent. When a dog-brain vaccine was used instead of a horse-brain vaccine for the second injection the number of paralytic cases was reduced from 3·6% to 0·35%. This supports the hypothesis that the basis of these incidents is allergic with a strong specific component. Individual disposition and the presence of distemper in the district play some role. —A. MAYR-HARTING.

DE STOPPELAAR, F. (1953). Natuurlijke koepokken bij de mens. [**Natural cow pox in man.**] —*Ned. Tijdschr. Geneesk.* **97,** 1602-1605. [Abst. from English summary.] **1096**

A farm worker developed a lesion with a black necrotic centre on the right forefinger; 10 cows on the farm where he worked had similar lesions on the udder, and 20 others became affected; the infection had apparently been introduced by a cow purchased from another district. Three lesions were found on the hand of the farmer, and one on the hand of his wife, who had done no milking. The clinical diagnosis of cow pox was confirmed by virological investigations.

JANSEN, J. (1953). Pokken bij mens en dier. (In het bijzonder de besmetting, over en weer, van mens en rund met vaccine). [**Pox diseases in man and animals.**]—*Tijdschr. Diergeneesk.* **78,** 829-837. [English, French and German summaries.] **1097**

J. concluded from an inquiry among the

Veterinary Services in Western Europe and from his own experience that vaccination of dairymen against smallpox is often followed by vaccinia in cattle with contact infection of non-vaccinated milkers. He commented briefly on other pox diseases.—C. A. VAN DORSSEN.

HJÄRRE, A., DINTER, Z. & BAKOS, K. (1951). Influensa och influensaliknande sjukdomar hos svin. **[Influenza and influenza-like diseases of swine.]**—*VI. Nord. Veterinärmötet.* [Proceedings of a Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th–11th 1951.] pp. 7-27. [In Swedish. English and German summaries. Abst. from English summary.] Discussion pp. 27-29. **1098**

The authors defined swine influenza as the disease caused by Shope's swine influenza virus, and recommended that other viruses causing pneumonia in swine be referred to as influenza-like.

They described an influenza-like disease of pigs in Sweden. After passage through mice a virus which serologically corresponded to strain 15 of Shope's influenza virus was isolated, but the authors had not yet proved that the virus isolated is identical with it. *Haemophilus suis* was not of aetiological importance.—R.M.

HOWELL, W. E., WINTERS, L. M. & YOUNG, G. A. (1953). **Prenatal and early postnatal survival in the mouse as affected by infection of the mother with swine influenza virus during gestation.**—*J. Immunol.* **71,** 280-283. **1099**

Pregnant mice were inoculated intranasally with swine influenza virus approx. 5, 10 and 15 days after conception to determine the effect of maternal infection on the developing young. In those inoculated on the 10th and 15th days the effect on the foetuses was negligible, but significantly fewer foetuses developed in those inoculated on the 5th day. The viability of the litters was high and subsequent litters were normal.—F.E.W.

MILZER, A. & NICHOLSON, F. (1953). **Immunological studies of the poliomyelitis (Lansing) and rabies viruses.**—*Amer. J. publ. Hlth.* **43,** 415-418. **1100**

Inactivated poliomyelitis virus vaccine did not protect mice against rabies nor did ultra-violet-irradiated rabies virus vaccine protect mice against poliomyelitis. In addition, no evidence of cross-immunity was found in neutralization tests with hyperimmune poliomyelitis and rabies antisera. In every experiment the vaccine or hyperimmune serum tested did protect against the homologous virus.—F. B. LEECH.

CORVAZIER, R. & LASFARGUES, E. (1953). Parenté antigénique *in vitro* entre le virus de la poliomyélite (type Lansing) et la virus de Carré. **[Antigenic similarity *in vitro* of poliomyelitis and dog distemper viruses.]**—*C.R. Acad. Sci. Paris.* **236,** 637-639. **1101**

Conglutination tests were performed, using as antigens spleen emulsion from ferrets infected with distemper and brain emulsion from mice infected with Lansing type poliomyelitis virus. Cross reactions occurred between distemper virus and anti-poliomyelitis serum and between poliomyelitis virus and anti-distemper serum. The authors concluded that the two viruses contain common antigens.—R.M.

WESTERMARCK, H. (1952). **Blood composition of horses before death from contagious bronchopneumonia.**—*Ann. Med. exp. Fenn.* **30,** 254-258. [In English.] **1102**

In horses with contagious broncho-pneumonia a decrease occurred in the inorganic phosphorus, vitamin A and total protein in the serum, and in the eosinophile count in the blood during the stage of exhaustion. The decrease in vitamin A was progressive. No definite change could be detected in the levels of calcium and ascorbic acid in the serum, in the nicotinic acid level in the blood, nor in the r.b.c. count. In some cases the eosinophiles had totally disappeared and only traces of vitamin A were found at the time of death. Similar changes were found in the blood of horses with exhaustion due to other causes, *e.g.* repeated transfusions of blood of a different group.—F.E.W.

MENGES, R. W., HARSHFIELD, G. S. & WENNER, H. A. (1953). **Sporadic bovine encephalomyelitis: etiologic studies, epizootiologic and epidemiologic implications.**—*Vet. Med.* **48,** 301-305. **1103**

A detailed account of a disease with 25% mortality in calves and considerably less in adult cattle. The authors discussed the symptoms, lesions and aetiology. All organs may be affected and the encephalomyelitis is incidental to a systemic infection.

Transmission experiments in calves were carried out.

The causal virus is of the psittacosis-lymphogranuloma group.—W. S. MARSHALL.

HOFMEYR, C. F. B. (1953). **Observations on some complications of and on the differential diagnosis of three day sickness (ephemeral fever) of cattle.**—*J. S. Afr. vet. med. Ass.* **24,** 181-184. **1104**

H. described geophagia, chronic myositis, prolonged debility and acute pulmonary con-

gestion and pneumonia in cattle, occurring as complications of three-day fever. He discussed the differential diagnosis of heartwater, anaplasmosis and babesiasis, and traumatic reticulitis.—W. S. MARSHALL.

VAN RENSBURG, S. W. J. (1953). **Contagious epididymitis and vaginitis in cattle.**—*Fmg S. Afr.* **28,** 292 & 297. **1105**

Bull and heifer calves may be infected at birth. Complete replacement of natural breeding by artificial insemination is the only successful means of control.—W. S. MARSHALL.

MATSUMOTO, H. *et al.* (1952). **[Studies on the relation between bovine influenza outbreaks and weather in Fukui Prefecture.]**—*J. Jap. vet. med. Ass.* **5,** 265-268. **1106**

From a statistical analysis of the outbreaks of " bovine influenza " which occurred in the autumn in 1949-51, the authors concluded that on fine days the incidence was low and that a wide range of daily temperature variation tended to lessen the incidence.—KOGI SAITO.

LJEŠEVIĆ, Ž. (1952). Lečenje enzootične bronhopneumonije teladi sulfapiridinom. **[Sulphapyridine treatment of enzootic pneumonia of calves.]**—*Vet. Glasn.* **6,** 626-635. [In Croat. French summary.] **1107**

Of 6 calves 6–9 weeks old, with enzootic broncho-pneumonia, given an initial dose of 6 g. of sulphapyridine and further doses of 3 g. twice a day, *per os,* for 4 days, one recovered; the others died or were slaughtered.

—I. MARTINI.

SIGURDSSON, B., PÁLSSON, P. A. & TRYGGVADÓTTIR, A. (1953). **Transmission experiments with maedi.**—*J. infect. Dis.* **93,** 166-175. **1108**

" Maedi ", a chronic progressive pneumonia of sheep in Iceland, is suspected to be caused by a virus. Results obtained in Reykjavík, in 5 series of laboratory transmission experiments with healthy sheep, using lung and mediastinal lymph node material injected directly into the lung and by nasal instillation, suggested that the incubation period for the development of gross lesions and clin. symptoms is about 2 years, but that early, microscopically visible lesions develop very gradually, either continuously or intermittently. Attempts to transmit the disease to small laboratory animals consistently failed.—F.E.W.

PERCIVAL, R. C., HARVEY, M. J., JAMES, T. & KOPROWSKI, H. (1953). **Studies on modified hog cholera vaccine : duration of immunity.**—*Vet. Med.* **58,** 359 & 366. **1109**

Fifty pigs, 3 months old, from an area free from swine fever were given 2 ml. of a live, rabbit-adapted swine fever vaccine (Rovac), intramuscularly. Groups were challenged 4, 6, 12 and 24 months later with 10,000 to 200,000 m.l.d. of virulent swine fever blood subcutaneously. All vaccinated pigs survived; all unvaccinated controls died.—J. E. SMITH.

BIANCHI, E. (1953). Il morbo di Teschen. (Transmissione sperimentale.) **[Teschen disease.]**—*Clin. vet., Milano.* **76,** [No. 7.] 193-209. **1110**

A description of the clinical and anatomical picture of experimental Teschen disease in pigs. The inoculum had been obtained from Australia, and rabbit tests had failed to reveal the presence of the virus of Aujeszky's disease in the material used. Pigs immune to swine fever did not show any particular resistance to Teschen disease virus.—I. MARTINI.

MADIN, S. H. & TRAUM, J. (1953). **Experimental studies with vesicular exanthema of swine.**—*Vet. Med.* **48,** 395-400; 443-450. **1111**

At least two serological types are recognized. The virus varies in size between 14 and 22 mμ. It remains viable at ordinary refrigerator temperatures for two years and aluminium-precipitated formalin-killed vaccines have protective value under experimental conditions. The authors discussed differential diagnosis.

—D. LUKE.

BEVERIDGE, W. I. B. & BETTS, A. O. (1953). **Virus pneumonia of pigs.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 345-349. [In English. French and German summaries.] **1112**

The authors described the influenza-like disease of pigs which occurs in the United Kingdom and to which they apply the name " virus pneumonia of pigs ". They discussed the relationship of the causal virus with those isolated from pneumonia and influenza-like disease of pigs in other countries.—R.M.

MORSE, H. G., CHOW, T. L. & BRANDLY, C. A. (1953). **Propagation of a strain of egg-adapted distemper virus in suckling mice.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 10-12. [Authors' summary modified.] **1113**

Two separate lines of the FXNO strain of egg-adapted dog distemper virus were passaged intracerebrally in unweaned mice 18 and 10 times, respectively. Both lines induced signs of protracted hyperkinesis. After the 7th passage

involvement of the c.n.s. became quite prominent and severe, ataxia, muscular twitching, disequilibrium, paresis, and clonic spasms being common manifestations. The time of the first nervous disturbance decreased progressively from 8 days to 3 days in Line 1 and from 15 days to 4 days in Line 2. *In ovo* neutralization tests and ferret protection tests established the identity of the mouse passaged agent with the original egg-adapted FXNO strain.

ANON. (1952). **[General review on distemper and infectious hepatitis in the dog.]**—*J. Jap. vet. med. Ass.* **5**, 173-176. **1114**

A general discussion on recent literature.
—KOGI SAITO.

ENGLERT, H. K. (1953). Laryngo-Enteritis infectiosa der Katzen und ihre Bekämpfung mittels Formol-Vaccine. **[Control of feline enteritis with formol vaccine.]**—*Tierärztl. Umsch.* **8**, 282-284. **1115**

E. reported satisfactory results from the use of formolized tissue vaccine in feline enteritis.—I. W. JENNINGS.

USTERI, C., WEGMANN, T. & HEDINGER, C. (1952). Über atypische Formen der sog. Katzenkratzkrankheit, einer benignen Virus-Lymphadenitis. **[Atypical forms of cat-scratch disease—a benign virus lymphadenitis.]**—*Schweiz. med. Wschr.* **82**, 1287-1290. **1116**

A clinical account of atypical ocular, respiratory, mesenteric, meningo-encephalitic, pseudo-venereal and erythema nodosum-like forms of cat-scratch fever in man.—E.G.

I. NOVY, F. G., PERKINS, W. A., CHAMBERS, R. & DEKRUIF, P. H. (1953). **The rat virus.**—*J. infect. Dis.* **93**, 111-123. **1117**

II. JORDAN, R. T., NUNGESTER, W. J. & PRESTON, W. S. (1953). **Recovery of the Novy rat virus.**—*Ibid.* 124-129. **1118**

I. An account of old data, most of them previously unpublished, on the Novy rat virus which was apparently lost after maintenance in rats for a number of years, this paper being prompted by the recovery of the virus by Jordan, R.T. *et al.* [see II *infra*].

II. An account of the recovery of a filtrable agent from the pooled contents of sealed tubes containing the blood of rats infected with the Novy rat virus between 1914-18, found when cleaning out a laboratory. Spirochaete-free heart blood from rats which died after inoculation with this material continued, after serial passage, to produce fatal infection in clean rats injected either intracerebrally or intraperitoneally. The virus passed Berkefeld W and Seitz EK filters; its approx. size was estimated at 20 mμ.

Neutralization tests, using serial dilutions of the virus and hyperimmune monkey and g. pig sera, revealed a possible but not close relationship to Eastern equine encephalomyelitis, but not to Western or Venezuelan encephalomyelitis nor to Mengo encephalitis or Semliki Forest viruses.—F.E.W.

NELSON, J. B. (1953). **Acute hepatitis associated with mouse leukemia. III. The natural resistance of Swiss mice to hepatitis. IV. The relationship of *Eperythrozoon coccoides* to the hepatitis virus of Princeton mice.**—*J. exp. Med.* **98**, 433-440 & 441-450. [Author's summaries modified. For previous parts, see *V.B.* **24**, 764.] **1119**

III. The mortality rate for 80 young weaned Swiss mice infected with mouse hepatitis was 2·5% in comparison with 98% for 140 Princeton mice. In Swiss weanlings discrete lesions, which generally failed to progress, were observed in the liver from the 3rd to the 10th day after intraperitoneal injection. The causal virus was demonstrable in peritoneal washings up to the 21st day and less regularly in the liver up to the 14th day. It was also detectable in both loci after subcutaneous injection. Infant Swiss mice were susceptible up to the 10th day of life, intraperitoneal injection being commonly followed by death.

The pathogenicity and titre of the virus were significantly increased by successive passage in Swiss weanlings.

The virus was detected in the blood of Swiss weanlings on s/c injection only after it had been modified by passage.

IV. The hepatitis of Princeton weanlings was not prevented by the prior injection of terramycin, nor was the virus inactivated by exposure to room temperature.

E. coccoides was not demonstrable in blood films from Swiss and Princeton mice infected with the corresponding type of hepatitis virus.

Combined infection with this virus and eperythrozoa, originally obtained from mice in association with *Plasmodium berghei*, was attended by the appearance of numerous organisms in the blood. The development of eperythrozoa in dually infected Princeton mice had no effect on the outcome of the hepatitis.

In Swiss mice, animals with high natural resistance to hepatitis virus, the pathogenicity of this agent was markedly enhanced by combined infection with eperythrozoa.

Eperythrozoa were maintained throughout

18 successive passages in normal Princeton and Swiss weanlings with intact spleens.

The combined infection of Princeton mice with eperythrozoa and the virus component of Gledhill, Dick, and Andrewes [*V.B.* **22,** 117], which is nearly inactive when injected alone, resulted in acute hepatitis with fatal outcome.

BRERETON, J. LE G. (1953). **Initial spread of myxomatosis in Australia.**—*Nature, Lond.* **172,** 108-110. **1120**

A study of the rate of spread of myxomatosis along the river valleys of South-Western Australia. B. suggested that this was independent of the incidence and activity of insect vectors.—IAN DAVIDSON.

SCHNEIDER, L. (1951). Passive Immunität der gegen die Geflügelpest immunen Kücken des Haushuhns. **[Passive immunity against fowl plague in newly hatched chickens.]**—*Acta vet. hung.* **1,** 251-259. [In German. Russian summary.] **1121**

The eggs of hens that have survived fowl plague or have been hyperimmunized, contain antibodies in the yolk. The virus can, however, be grown in embryos developing from such eggs up to about 15 days of incubation. When retraction of the yolk sac begins, the embryo becomes resistant to the virus and remains so until the yolk sac is completely resorbed—usually 6 days after hatching—and for a short time thereafter. The function of the yolk sac as the vehicle for antibodies corresponds to that of the colostrum in mammals.

—A. MAYR-HARTING.

GUSTAFSON, D. P. & MOSES, H. E. (1953). **The English sparrow as a natural carrier of Newcastle disease virus.**—*Amer. J. vet. Res.* **14,** 581-585. **1122**

Under simulated natural conditions it was found that sparrows became infected from infected fowls and infection passed to healthy chickens from infected sparrows. The authors reported the isolation of the virus from a naturally infected sparrow for what they believed to be the first time.—W. S. MARSHALL.

TAYLOR, J. R. E. (1953). **A method of challenge for Newcastle disease immunity and its interpretation.**—*Canad. J. comp. Med.* **17,** 321-325. **1123**

The challenge dose having been established, the test group and non-immune birds were challenged and a contact group was added. The mortality counted was that which occurred prior to the first deaths in the contact group.

—R. GWATKIN.

REAGAN, R. L., QURESHI, S. H. & BRUECKNER, A. L. (1953). **Electron micrographs of Newcastle disease virus propagated in the green turtle** (*Pseudemys elegans*).—*Vet. Med.* **48,** 493-494. [Authors' summary modified.] **1124**

Turtle-passaged Newcastle disease virus from the first subinoculation in turtles by the intracerebral route was 75% pathogenic for chick embryo on the first embryo passage. The virus in the allantoic fluid of eggs inoculated with the turtle brain material was neutralized by positive Newcastle disease serum but was unaffected by normal fowl sera.

Electron micrographs of these virus particles revealed very little morphological change in the virus after passage in turtle brain and re-inoculation into chick embryos, apart from a certain variation in the tail structure.

DIVO, A. & LUGO, A. (1952). Un caso de parotiditis humana por virus de Newcastle (Infectión de laboratorio). **[Parotiditis in man caused by the virus of Newcastle disease.]** —*Bol. Inst. Invest. vet., Caracas.* **4,** 644-649. [English summary.] **1125**

The authors described inflammation of the right parotid gland in a human being, starting four days after accidental ingestion of the virus of Newcastle disease. The virus was recovered from the saliva and identified by haemagglutination and haemagglutination-inhibition tests and by inoculation of susceptible birds and chick embryos.—I. W. JENNINGS.

LIPPMAN, O. (1952). **Human conjunctivitis due to the Newcastle-disease virus of fowls.**—*Amer. J. Ophthal.* **35,** 1021-1028. **1126**

L. reported a case of human conjunctivitis due to Newcastle disease virus. The diagnosis was based on positive identification of the virus from the eye, and on a rise of the antibody titre for Newcastle disease in the patient's serum.—W. R. BETT.

HURST, E. WESTON., LANDQUIST, J. K., MELVIN, P., PETERS, J. M., SENIOR, N., SILK, J. A. & STACEY, G. J. (1953). **The therapy of experimental psittacosis and lymphogranuloma venereum (inguinale). II. The activity of quinoxaline-1:4-dioxide and substituted and related compounds, with a note on the morphological changes induced in lymphogranuloma virus by these compounds and by antibiotics.**—*Brit. J. Pharmacol.* **8,** 297-305. [Authors' summary modified.] **1127**

A number of distinct classes of synthetic organic chemicals possess some degree of activ-

ity against the largest viruses of the psittacosis-lymphogranuloma group; of these quinoxaline-1:4-dioxide and its substituted derivatives are perhaps the most potent. Some of the substituted derivatives are preferable to the parent compound on the ground of higher antiviral activity coupled with lower toxicity; the best equal aureomycin in activity against lymphogranuloma venereum in the mouse, but relatively few are as effective against this disease in the chick embryo or against psittacosis in the mouse. Like aureomycin and unlike penicillin, they are effective whatever the route of inoculation of virus—intraperitoneal, intranasal, or intracerebral. Therapeutic activity has also been noted in man, but here toxic-side-reactions preclude the use of these compounds.

The compounds do not inactivate virus *in vitro,* but greatly restrict its growth in the mouse even to the point of apparent complete suppression, though many mice remain carriers over an indefinitely long period after treatment without being contagious for healthy animals. Therapeutic activity is not abolished by the simultaneous exhibition of synthetic vitamin K. After several serial passages in the presence of the drug the viruses develop resistance.

The therapeutic activity of penicillin is accompanied by considerable morphological changes in the virus, which for much of its period of development continues to grow into large plaques (up to 6 μ in diameter) without subdivision into elementary bodies. Similar giant forms are not seen with the quinoxaline dioxides or aureomycin; although at one stage plaques rather larger than normal develop, they ultimately divide into elementary bodies.

The quinoxaline dioxides did not influence infections with a number of other viruses, *Rickettsia burneti,* and *Toxoplasma.*

Dane, D. S., Miles, J. A. R. & Stoker, M. G. P. (1953). **A disease of Manx shearwaters: further observations in the field.**—*J. Anim. Ecol.* **22,** 123-133. **1128**

A description of puffinosis [*V.B.* **22,** 2833 & 2834] epizootics among juvenile Manx shearwaters on the island of Skomer, Pembrokeshire in 1948 and 1949. Over 75% of infected birds died, usually within 3 or 4 days of infection. The higher incidence of the disease in certain areas in 1948 as compared with 1949 was attributed to the wet summer and the very dense cover present in the former year. The authors concluded that the disease can only reach epizootic proportions in an area where the number of birds is high and where crowding is accentuated by thick cover on the ground. There was some evidence that shearwaters may become infected by contact with gulls.—A.S.

Watson, B. K. (1952). **Fate of mumps virus in the embryonated egg as determined by specific staining with fluorescein-labelled immune serum.** — *J. exp. Med.* **96,** 653-663. **1129**

Eight-day chick embryos were inoculated with mumps virus, and fluorescein-labelled immune serum was used to study the localization of the virus in frozen sections. Stained cytoplasmic granules were found mainly in the cells lining the amnion and in the epidermis and the pharyngeal epithelium. Later, some granules were found also in the cells of the chorio-allantois and the peritoneum, and extra-cellularly in the respiratory and the gastro-intestinal tracts. The mortality in infected embryos was not greater than in the controls. The infected cells seem to be replaced later by non-susceptible ones, as the infection is self-limiting, and no multiplication of virus could be detected in embryos infected at 16 days.

—A. Mayr-Harting.

Smith, W. (1953). **Progress in viral immunology.**—*Brit. med. Bull.* **9,** 176-179. **1130**

Until satisfactory methods of purification and concentration of virus were introduced, virus neutralization was the only demonstrable serological reaction in the majority of virus diseases of man and animals. Complement fixation can be used in routine serological diagnosis of many virus infections. S. described the phenomenon of virus haemagglutination, and discussed antigenic complexity of viruses, antigenic lability, and the interference phenomenon.

—W. R. Bett.

Terzin, A. L. (1953). **Glycerine as a stabilizer of some complement-fixing antigens of viral and rickettsial origin.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 215-218. [Abst. from author's summary.] **1131**

T. found that the addition of 50% glycerin to certain complement-fixing antigens of viral and rickettsial origin prevented rapid deterioration of antigen titres and the occurrence of visible flocculation following long storage or exposure to unduly high temperatures.

Maurin, J. (1953). Déviation du complément et épreuve allergique dans la fièvre Q. **[Complement-fixation and allergic tests in Q fever.]** —*Ann. Inst. Pasteur.* **84,** 650-653. **1132**

The skin test in lambs for Q fever introduces the antigen into the animal and thereby

causes complement-fixing antibodies to develop. A complement-fixation test which has been preceded, within several months, by a skin-sensitivity test is, therefore, valueless for diagnosis.
—A. MAYR-HARTING.

JANSEN, J. (1953). Komt Q-fever in Nederland voor? **[Investigation for the presence of Q fever in cattle in the Netherlands.]**—*Tijdschr. Diergeneesk.* **78,** 838-841. [English, French and German summaries.] **1133**

Of 62 brucella-negative sera from cows that had aborted or were sterile none gave complement-fixation with Q fever antigen.
—C. A. VAN DORSSEN.

TERHAAG, L. (1953). Zur Epidemiologie des Q-Fiebers. Q-Fieber in der Eifel. **[The epidemiology of Q fever. Q fever in the Eifel region.]**—*Arch. Hyg., Berl.* **137,** 247-269. **1134**

T. described in considerable detail the epidemiology of an outbreak of Q fever in man which originated in the Eifel region of Germany in the spring of 1950, reaching its peak towards the end of February and suddenly ceasing in April. He regarded flocks of sheep driven through this area on their way to their annual summer grazing grounds as the main source of human infection and discussed the incidence of human outbreaks along the migration route of the flocks, which was highest during the lambing season. He also discussed the role of placenta and amniotic fluid, and of dust containing dried particles of faeces and urine of sheep in the epidemiology of human infection. He recommended a compulsory notification scheme and legislation prohibiting movement of infected flocks. He gave a comprehensive list of references.—E.G.

OMORI, T. *et al.* (1952). **[The survey of Q-fever among domestic animals in Japan.]**—*J. Jap. vet. med. Ass.* **5,** 268-270. **1135**

Serum samples from 21 out of 1,550 cattle, 4 goats out of 91 sheep and goats, and 3 out of 5 camels gave a positive reaction to the complement-fixation test for Q fever at a dilution of 1 : 16 or over.—KOGI SAITO.

SCHELLNER, H. (1953). Q-Fieber-Erkrankung des Menschen im Anschluss an Geburtshilfe bei einer Kuh. **[Q fever in man after assisting at the calving of a cow.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 349-353. [In German. English and French summaries.] **1136**

Ten persons, including 7 members of a farmer's family, became ill with Q fever following the occurrence of abortion with retained placenta in a cow. Blood from the cow was positive to the c.f. test, and there were histological lesions consisting of small collections of lymphocytes around the central veins of the liver, said to be typical of *Rickettsia* infection in man.—R.M.

SIEGERT, R., PETER, H., SIMROCK, W. & SCHWEINSBERG, H. (1951). Versuche zur aktiven Immunisierung gegen Q-Fieber. **[Experiments in active immunization against Q fever.]**—*Arb. Paul Ehrlich-Inst.* No. 49, 162-171. **1137**

A Q fever vaccine prepared from yolk sac cultures of *Rickettsia burneti,* purified with ether and killed by ultra-violet irradiation failed to immunize g. pigs against subsequent infection.—E.G.

HUGHES, M. H. (1953). **A rickettsial disease of goats in the Gold Coast.**—*Ann. trop. Med. Parasit.* **47,** 299-303. **1138**

Six goats imported from Great Britain died from a rickettsial infection which was transmissible to g. pigs. Exudation into the pericardium was common, as were disturbances of the c.n.s. The rickettsial strain was lost during the third passage. H. discussed its relationship to other local rickettsial infections. The disease has many points of resemblance to heartwater, but its transmissibility to g. pigs sharply differentiates it. Local goats are resistant.
—W. S. MARSHALL.

MONTOYA, J. A. (1952). Observaciones sobre tifo epidemico en curies domesticos. **[Rickettsial typhus in g. pigs.]**—*Bol. Ofic. Sanit. pan-amer.* **33,** 136-138. **1139**

In the Department of Nariño, Colombia, g. pigs are bred for food by a considerable part of the population; they live in the houses, sleeping in the kitchen or under the beds; most of them are heavily infested with fleas, mites and other arthropods. Of 40 g. pigs caught in a village during an epidemic of louse-borne rickettsial typhus, 2 gave a strongly positive reaction to the c.f. test with specific louse-borne typhus antigen (from the U.S.A.) at dilutions of 1:8 to 1:64, and all reacted in higher titres to the epidemic typhus antigen than to the murine antigen. Of 132 g. pigs from 4 other towns, 6 of those from one town had higher titres for epidemic than for murine antigen at dilutions of 1:8 to 1:64. The public health problem is being further studied.—F.E.W.

See also absts. **1330** (report, Swaziland); **1331** (report, Sierra Leone); **1332** (report, Nyasaland Protectorate); **1334** (report, East Africa High Commission).

IMMUNITY

COHN, M. (1953). **A note on the use of the antigen excess zone to reveal the existence of certain types of cross reactions in unidentified mixtures of antigens.**—*J. Immunol.* **70,** 317-320. **1140**

In contrast to the marked solubility of most single protein-antiprotein complexes in excess antigen, C. described experiments in which the curve of the quantitative precipitin reaction between mixtures of β-galactosidase (Gz) produced by *Bact. coli* grown in the presence of an inducer (lactose β-methyl-galactoside) and a structurally similar protein (Pz) found in extracts of *Bact. coli* and anti-β-galactosidase extended out horizontally as the ratio of Gz/Pz decreased even when Pz was present in large excess in the supernatant. In the plateau region of the curve, a separation of the two cross-reacting components was effected.

—A. ACKROYD.

LAPORTE, R., HARDRÉ DE LOOZE, L., LE MINOR, L. & SILLARD, R. (1953). Modification expérimentale de la réponse immunitaire normale d'un organisme: obtention chez le lapin de " l'anticorps de la mononucléose infectieuse ". **[Experimental modification of normal immunological reaction: production of " antibody of infectious mononucleosis " in rabbits.]**—*C. R. Acad. Sci., Paris.* **236,** 2559-2561. **1141**

Immunological response in the rabbit can be modified by i/v injection of microbic toxins together with cattle r.b.c. A thermostable cell substance thus acquires antigenic power which it does not exercise on the normal rabbit.

—W. R. BETT.

LERMAN, L. S. (1953). **Antibody chromatography on an immunologically specific adsorbent.** [Correspondence.]—*Nature, Lond.* **172,** 635-636. **1142**

L. described a method of elution chromatography of an antibody on its specific adsorbent. An adsorbent homologous to the simple hapten p-azobenzenearsonate was used.

—W. S. MARSHALL.

BUXTON, J. C. & BROOKSBANK, N. H. (1953). **Haemolytic disease of new-born pigs caused by iso-immunization of pregnancy.** [Correspondence.]—*Nature, Lond.* **172,** 355. **1143**

The death of several litters of piglets by the fifth day with varying degrees of jaundice is described, together with autopsy findings. Sensitization of the piglets' cells was shown in each case by the anti-globulin test, and serological incompatibility between the sows and the boar was demonstrated.—G. FULTON ROBERTS.

DJURICIC, I. & NIKOLIC, B. (1953). Die Bluteiweisskoerperveraenderungen im anaphylaktischen und histaminischen Schock beim Hunde. **[Serum proteins in anaphylactic and histamine shock in dogs.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 660-664. [In German. English and French summaries.] **1144**

The authors compared changes in serum proteins in anaphylactic shock with those in histamine shock in dogs. No differences were observed in the total protein concentration or the γ-globulin concentration. The cadmium sulphate flocculation reaction increased in anaphylactic shock but decreased in histamine shock. Serum viscosity decreased in anaphylactic shock but increased in histamine shock. The authors concluded that the colloidal state of the serum proteins is different in the two types of shock.—R.M.

SOLOTOROVSKY, M. & WINSTEN, S. (1953). **Anaphylaxis in the mouse produced with crystalline bovine albumin.**—*J. Immunol.* **71,** 296-299. [Authors' summary modified.] **1145**

Sensitization and fatal anaphylactic shock were produced in the mouse with 1 mg. doses of crystalline bovine albumin dissolved in saline. Using alum-precipitated bovine albumin, the sensitizing doses were reduced to 0·016 mg. Following sensitization with alum-precipitated bovine albumin, fatal shock was produced with a challenging dose of 0·016 mg. of antigen. Further studies with this species appear justified.

See also abstr. **970-997** (diagnosis of *V. fetus* infection); **978-981** (TB.); **991** (B.C.G.); **996** (swine erysipelas vaccine); **1001** (fowl cholera); **1005** (*Salmonella* infection in calves); **1018-1020** and **1022-1024** (brucellosis); **1025-1026** (leptospirosis); **1032-1033** (tetanus); **1051** (chrome vaccines); **1055** (preparation of dourine antigen); **1056** (trypanosomiasis); **1068** (malaria); **1083** and **1086** (F. & M. disease); **1091-1095** and **1100** (rabies); **1101** (antigenic similarity of poliomyelitis and dog distemper viruses); **1109** (swine fever); **1111** (vesicular exanthema of swine); **1113** (distemper); **1115** (feline enteritis); **1121** (fowl plague); **1123-1124** (Newcaste disease); **1130** (viral immunology); **1131** (glycerine as sterilizer of virus and rickettsial antigen); **1132** and **1137** (Q fever); **1174** (immunological reaction of sheep exposed to helminths); **1177** (mechanism of immunity to nematodes); **1280** (semen identification by a precipitation test).

PARASITES IN RELATION TO DISEASE [GENERAL]

CAMERON, T. W. M. (1953). **Factors determining the geographical distribution of parasites.** —*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 455-458. [In English. French and German summaries.] **1146**

Whether a given host is susceptible to attack by a given parasite in any particular part of the world is largely determined by the environmental factors, particularly those of temperature and humidity, which act upon the free stage of the parasite, or perhaps on its intermediate host, in that region. A bioclimatograph may be used to compare the actual conditions of temperature and humidity in a region with those known to be favourable to a parasite. Such a graph shows at a glance whether a particular parasite, once introduced, would be able to persist in a region, and C. recommended that studies of this sort should be carried out on a large scale in order to map the areas theoretically in danger of infestation by the more important parasites. Such work would form a good basis for sound precautionary measures. —A.S.

FOSTER, A. O. (1953). **Critical review of present-day treatments of parasitic infections, giving lists of drugs.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 458-468. [In English. French and German summaries.] **1147**

F. presented lists showing, for the more important animal hosts, those preparations which were considered most suitable for the numerous parasitic infections and infestations mentioned. The preparations were given in order of decreasing suitability, emphasis being laid on the impossibility of making hard and fast decisions in such a field. F. appealed to anyone who could assist him in keeping the lists up to date to do so.—A.S.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

SERGENT, E. (1953). La thimni. [*Oestrus ovis* **infestation of human beings.**]—*Arch. Inst. Pasteur, Algér.* **31,** 127-128. **1148**

A note on *Oes. ovis* infestation of human beings. The disease is transitory as the larvae do not complete their development in this unnatural host. The fly attacks man when the sheep host is scarce.—D. POYNTER.

DURIN, L. & PÉRÈS, G. (1953). Lésions médullaires graves causées par des larves d'hypoderme sur un taureau. [**Spinal lesions in a bull caused by larvae of** *Hypoderma sp.*]—*Bull. Soc. Sci. vét. Lyon.* **54-55,** 111-112. **1149**

A bull, 15 months old, which kept its head constantly turned to one side, was slaughtered and 3 larvae of a species of *Hypoderma* were found in the tissue of the spinal cord. —JAS. G. O'SULLIVAN.

TER BORG, H., JOLING, K. F. & DE VRIES, L. P. (1953). **Control of the warble fly.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 437-442. [In English. French and German summaries.] **1150**

Since the second world war, animal health services have been set up in each province of the Netherlands, organized on the same lines as the successful service which existed in Friesland before the war. Amongst other matters dealt with these services have persuaded the farmers to recognize the importance of warble fly control, and now the farmers' co-operatives, or the health services themselves, according to the province, employ skilled personnel to visit breeders three times a year, in April, May, and June, treating the cattle with a derris suspension. Very good results have been obtained. —A.S.

TRAVASSOS SANTOS DIAS, J. A. (1951). Resultados de um reconhecimento glossínico efectuado em 1949 nos distritos de Inhambane e Gaza. [**A tsetse-fly survey in the Inhamba and Gaza districts of Mozambique.**]—*Ann. Serv. Vet., Mozambique.* **3,** 121-152. **1151**

G. austeni, G. brevipalpis and *G. pallidipes* were found in various districts of Mozambique, and a study was made of their ecology. In a survey of bovine blood samples only 0·5% were found to be infected with trypanosomes. This low figure was thought to be due to recent medication and to a natural periodic fall in the endemic curve of the disease.—I. W. JENNINGS.

NETTEL, F. R. (1952). Estudio comparativo de las capturas de simúlidos en personas y animales (equinos), en el foco de oncocercosis de Chiapas. [**Comparative study of the captures of** *Simulium* **on man and animals (horses and mules) in the focus of onchocerciasis in Chiapas, Mexico.**]—*Medicina, Méx.* **32,** 73-80. **1152**

In order to establish the host-preference (domestic animals or man) of the various species of *Simulium* known to exist in the main focus

of *Onchocerca* infestation in the State of Chiapas, Mexico, the flies were captured during the forenoon in 40 representative areas in that zone in 1945-48, using as " bait " horses, mules, and human beings with bare thorax, arms and thighs. Of 8,439 female flies of 20 species caught (5,472 on the men and 2,967 on the animals), *S. ochraceum*, representing 8·41% of the total catch, was restricted to human beings; *S. metallicum*: 53·45% on man and 42·13% on animals, *S. callidum*: 1·39% and 6·61% respectively, *S. exiguum*: 0·02% and 0·17%, and *S. haematopotum*: 36·73% and 29·59% respectively attacked both hosts, while 15 other species attacked the animals only.—F.E.W.

KEMPER, H. E., COBBETT, N. G. & PETERSON, H. O. (1953). **Fluctuation of the ked population on sheep following shearing.**—*Vet. Med.* **48**, 483-485. **1153**

Counts of keds, *Melophagus ovinus* and of pupae that remained on 4 sheep after shearing, and of the keds and pupae in each shorn fleece revealed that 41% of the keds and 96% of the pupae were removed by shearing, that 56% of the remaining keds were lost within 24 hours and a total of 82% during the first week after shearing. On lambs born to ewes that had been shorn 2 weeks before parturition, keds doubled their numbers in 29 days and increased a hundredfold in 9 months. On yearling lambs the average count was 183·5; five days after shearing the av. count was 7 per lamb. Keds on both ewes and lambs gradually decreased during summer months after shearing, increasing from November to shearing time in June.

—F.E.W.

ARTHUR, D. R. (1953). **Records of *Ixodes hexagonus* Leach from S.E. England and S. Wales (Acarina, Ixodidae).**—*Entomologist.* **86**, 76-77. **1154**

Lists of records of places where found and of hosts on which found.

ARTHUR, D. R. (1953). **The host relationships of *Ixodes hexagonus* Leach in Britain.**—*Parasitology.* **43**, 227-238. [Author's summary modified.] **1155**

On the available data from S. Wales and S.E., England, *I. hexagonus* has spring and autumn peaks of activity on hedgehogs, stoats and weasels. Individuals of one or more stages of this tick have been recorded on 15 mammalian hosts. All stages have been collected from hedgehogs, stoats, foxes, polecats and ferrets. No specimens of *I. hexagonus* have been found on birds.

Man is an accidental host; records of this tick on man in the London area are given. Ill-effects following the bite of this parasite appear to be rare. In built-up areas the probable sources of infestation are dogs, cats and hedgehogs. Air-raid shelters and similar constructions which have harboured these hosts at one time or another may provide a centre of infestation of man. It is suggested tentatively that the ticks may drop off hedgehogs away from the nest and after further development may be picked up by foxes, stoats and weasels.

The records of this tick in Britain indicate that it is a southern species.

HITCHCOCK, L. F. (1953). **Resistance of cattle tick (*Boophilus microplus* (Canestrini)) to benzene hexachloride.**—*Aust. J. agric. Res.* **4**, 360-364. [Abst. from author's summary.] **1156**

A strain of *B. microplus* from central Queensland is so resistant to benzene hexachloride (B.H.C.) that its control is impossible under ordinary dipping routine with the recommended conc. of 500 p.p.m. of the γ-isomer. Laboratory tests showed that the conc. required to prevent deposition of viable eggs by 50% of females of this strain was 185 times higher than the corresponding value for female ticks of a strain which had never been treated with B.H.C. Laboratory toxicity tests revealed a similar difference in degree of resistance between larvae of the two strains although in absolute terms the tolerance of larvae was much lower than that of engorged females. The B.H.C.-resistant strain was also resistant to other acaricides.

WILEY, A. J. (1953). **Notes on animal diseases. XXV. Common ticks of livestock in Kenya.**—*E. Afr. agric. J.* **19**, 5-10. **1157**

W. described 13 species of ticks of economic importance in Kenya. They are *Argas persicus, Amblyomma gemma, Amb. variegatum, Boophilus decoloratus, Haemaphysalis leachi, Hyalomma* species, and seven species of *Rhipicephalus*, of which four are vectors of East Coast fever (*Theileria parva* infection). He gave a brief description of each tick, together with notes on the distribution, hosts, and the diseases transmitted.—D. W. JOLLY.

RAGEAU, J. & VERVENT, G. (1953). Clé des *Amblyomma* d'Afrique. **[A key to the genus *Amblyomma* in Africa.]**—*Ann. Parasit. hum. comp.* **28**, 60-63. **1158**

The authors dealt with 21 species of *Amblyomma*, 20 of them being differentiated on the characters of the males and 18 on the characters of females.—JAS. G. O'SULLIVAN.

CAMPBELL, J. A. (1953). **Studies on the control of the sheep tick,** *Ixodes ricinus* **L.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 450-455. [In English. French and German summaries.] **1159**

C. discussed reasons for failure to control *I. ricinus,* and reviewed recent experimental work by British authors on dips and dipping of sheep.—R.M.

OLDS, R. J. (1953). *Pneumonyssus caninum,* **Chandler and Rube 1940 in North Queensland.**—*Aust vet. J.* **29,** 300-301. **1160**

A case record with a discussion on the taxonomic features of the mite.—D. MURRAY.

BOT, J. (1952). **The action of DDT, hexachlorocyclohexane, chlordane and toxaphene.**—*Doc. med. Geogr. Trop.* **4,** 57-70. [In English.] **1161**

From a series of studies on the action of D.D.T., benzene hexachloride (B.H.C.), chlordane and toxaphene when applied by capillary tube to various parts of the body surface, on *Calliphora erythrocephala* and *Periplaneta americana* (American cockroaches), previously anaesthetized and suitably immobilized by various techniques illustrated in diagrams, B. concluded that all these insecticides are primarily carried *via* the haemolymph through the body in both species, spread through the neural tissue being only of secondary importance. The cockroach can withdraw and excrete them from the haemolymph by means of the Malpighian tubules. D.D.T. appears to affect the entire nervous system: when applied to the tarsus it stimulates the motor nerve in such a way that when the treated leg is amputated it shows independent contractions. Chlordane, B.H.C. and toxophene have a strongly centralized action, on the thoracic ganglia.—F.E.W.

See also absts. **1273** (determination of age of *Calliphora* and *Sarcophaga* larvae); **1328** (report, Nigeria); **1330** (report, Swaziland).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

BAKER, D. W. (1953). **The lancet liver fluke,** *Dicrocoelium dendriticum,* **infection in New York State livestock,—Does this represent a national livestock health hazard?**—*Proc.* 56*th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 259-262. **1162**

There has been a continual spread of *D. dendriticum* infestation around the endemic zone in New York State during the past 10 years. The fluke has been found in cattle, sheep and deer. The common woodchuck (*Marmota monax*) serves as a reservoir host. The molluscan host is *Cionella lubrica.* B. discussed the difficulties of an effective control programme. —S. F. M. DAVIES.

KNÖNAGEL, H. (1953). Über einen Fall von menschlichen Infektion mit dem Katzenleberegel Opisthorchis felineus (Riv.). [**A human case of infestation with the liver fluke** *Opistorchis tenuicollis* **of cats.**]—*Z. Tropenmed. u. Parasit.* **4,** 389-395. [Abst. from English abst.] **1163**

Eggs of *O. tenuicollis* were found in sections of liver tissue from a jaundiced patient in a Berlin hospital. The infestation had probably taken place in the Crimea 10 years earlier. Although the patient's general condition improved under repeated treatment with "resochin" and stibophen, eggs of the fluke were still present in the duodenal juice one year later.

CATELLANI, G. (1953). Le alterazioni delle linfoghiandole bronchiali e mediastiniche nella distomatosi polmonare dei bovini. [**Changes in the bronchial and mediastinal lymph nodes in** *Fasciola hepatica* **infestation of the lungs of cattle.**]—*Atti. Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 284-289. [English and French summaries.] **1164**

C. described the histology of the bronchial and mediastinal lymph nodes of cattle with infestation of the lungs by adult liver flukes. The main change in the lymph nodes was hyperplasia of the elastic tissue of the capsule and trabeculae. These findings were similar to those described by MARCATO [*V.B.* **8,** p. 645] in the corresponding lymph nodes of sheep infested with lungworms.—R.M.

PETROCHENKO, V. I. (1953). [**Control of** *Limnaea truncatula,* **a vector of fascioliasis.**]—*Veterinariya, Moscow.* **30,** No. 7. pp. 32-33. [In Russian.] **1165**

P. evaluated the degree to which snails were responsible for disseminating liver flukes. He collected several thousand snails of several species, dividing their habitat into 3 categories: —(a) shallow streams, ponds, bogs and marshes; (b) restricted moist situations; (c) wet depressions caused mainly by hooves of animals around the fringes of zones (a) and (b). Of all the species P. found that only *L. truncatula* in

zone (c) was infested, the conditions there being most suitable for the hatching of eggs and for opportunities to infest cattle. To eradicate the snail he suggested chemical measures of control on its first appearance in spring.—F.A.A.

KISNER, C. D., STOFFBERG, N. & DE MEILLON, B. (1953). **Human infection with** *Bilharzia bovis*.—*S. Afr. med. J.* 27, 357-358. 1166

An account of a case of *Schistosoma bovis* infestation of the urinary tract in a European schoolboy living in the Witwatersrand area where *Physopsis* snails are known to be heavily infested with the cercariae of this worm. No previous cases of infestation of man with this species had been reported. Treatment with miracil D was successful. Cercariae obtained from *Physopsis* snails exposed to miracidia from ova passed by the patient were administered to mice, but only male worms developed.—F.E.W.

VOGEL, H. (1953). **A serological study of some helminth relations.**—*J. Immunol.* 70, 503-506. 1167

Precipitin tests, using rabbit serum, with antigens prepared from *Taenia taeniaeformis, T. pisiformis, Dipylidium caninum,* and *Moniezia expansa,* demonstrated a closer affinity between the two species of the same genus, than the members of different genera. The author suggested that the use of antisera prepared from distantly related species may be of taxonomic aid, when such sera produce similar reactions with different species of the same group.—D. W. JOLLY.

HARRIES, L. G. (1953). **Treatment of tapeworm infestation in sheep.**—*Vet. Rec.* 65, 894-895. 1168

An account of successful anthelmintic treatment with 2:2′ - dihydroxy - 5:5′ - dichlorodiphenyl methane of 230 ewes and 220 lambs in a flock with a heavy infestation with *Moniezia expansa* associated with poor general condition and earlier mortality in both ewes and lambs. The drug was given *per os* without fasting, 7·5 g. to ewes and 3 g. to lambs; except for 4 lambs which died, all rapidly increased in body wt. and general condition after treatment. No controls were kept.—F.E.W.

OLSEN, O. W. (1953). **An evaluation of medicaments, with special reference to teniatol for removing fringed tapeworms** (*Thysanosoma actinoides*) **from the livers of sheep.**—*Amer. J. vet. Res.* 14, 616-620. 1169

Teniatol (an aqueous suspension of 2,2′-dihydroxy-5-5′ dichlorodiphenyl methane) gave variable results when administered [presumably *per os*] to fattening lambs for the control of *T. actinoides* infestation of the liver. On subsequent slaughter, the ratio of condemned livers from 351 sheep that had been treated with 1 oz. of the drug was 39·5:100 as compared with untreated controls; the corresponding ratio for 109 animals that had been treated with 2 oz. of the drug was 62·5:100, the average for both groups being 41·5:100. These results indicated that treatment of fattening lambs only for the sake of subsequent salvage of the liver is not economical. There was no evidence that removal of the tapeworms yielded economically worth-while reduction in the mortality of affected sheep to justify the treatment.

—F.E.W.

OSIMANI, J. J., MIGLIARO, E. F. & ABELLA, C. M. (1953). Étude expérimentale de l'action des ultrasons sur la larve d'*Echinococcus granulosus* (kyste hydatique). **[Action of ultrasonic waves on hydatid cysts.]**—*Ann. Parasit. hum. comp.* 28, 33-46. 1170

Living *Echinococcus* scolices taken from a pig were submitted to the action of ultrasonic waves at 800 kilocycles and a field intensity of 2·5 W/cm² for 5 min. After this treatment degenerative changes developed in many scolices and their motility was generally less than in untreated scolices. *Echinococcus* infestation was established in 10 out of 12 mice into which untreated scolices were introduced i/p and in only 5 out of 14 mice into which treated scolices were so introduced.—JAS. G. O'SULLIVAN.

VOGELSANG, E. G. (1951). Nematodes parásitos de los equinos de Venezuela. **[Nematode parasites of horses in Venezuela.]**—*Rev. Med. vet., Caracas.* 10, 119-124. 1171

In all, 18 different species of nematodes have been identified in horses in Venezuela. Strongyle infestation is the commonest, and causes great economic loss.—I. W. JENNINGS.

LEVINE, N. D. (1953). **The effects of aureomycin and other compounds on horse strongyle larvae.**—*Amer. J. vet. Res.* 14, 548-549. [Author's summary modified.] 1172

Of 14 compounds tested, 0·00209 M. aureomycin, 0·00307 M. hexachlorocyclopentadiene, and 0·0025 M. *n*-hexyl isooctyl amine prevented the development of horse strongyle eggs and/or larvae in faeces *in vitro*. Compounds which were ineffective at 0·01 M. were: tetraisopropylpyrophosphate, tetrabutylpyrophosphate, δ-benzene hexachloride, heptachlor, thymol N - *iso*amylcarbamate, nitrophenide, nitrofurazone, pinacolone, 2 - nitroresorcinol, diethylphosphoric acid and p,p′-dinitrostilbene.

PRICE, D. A., HARDY, W. T. & BOUGHTON, I. B. (1953). **Phenothiazine-salt mixture, free choice, for the control of the large stomach worm in range sheep. An 8-year study conducted under the natural range conditions of the Edwards Plateau.**—*Bull. Tex. agric. Exp. Sta.* No. 766. 1173

An account of an 8-year study on 2 groups of sheep, kept under typical range conditions in the Edwards Plateau area of Texas, one group having access to a 1:9 phenothiazine-salt mixture and the other, as control, to common salt only. The phenothiazine-salt mixture was well tolerated and control of *Haemonchus contortus* was satisfactory in the treated group as revealed by comparison of eggs counts, development of larvae in faecal samples and worm counts made P.M. in each group. The authors pointed out that this method might be impracticable in areas with a higher rainfall and different topography; the average rainfall over 30 years in the test area was 24 inches.

—F.E.W.

STEWART, D. F. & GORDON, H. McL. (1953). **Studies on resistance of sheep to infestation with *Haemonchus contortus* and *Trichostrongylus* spp. and on the immunological reactions of sheep exposed to infestation. VI. The influence of age and nutrition on resistance to *Trichostrongylus colubriformis*.**—*Aust. J. agric. Res.* 4, 340-347. [Authors' summary modified.] 1174

Of 10 sheep aged 3–4 years which had been born and maintained under worm-free conditions, 7 died from an initial experimental infestation with *T. colubriformis*. This mortality was in striking contrast to the results with 9-month-old sheep which had had previous experience of infestation. It demonstrated that resistance to *T. colubriformis* could not be ascribed to increasing age.

In a group fed on a low plane of nutrition and given 40,000 or 100,000 larvae, more sheep developed infestations than did similar sheep in groups given an adequate or a high-protein diet. In lambs which had been kept worm-free since birth and then dosed with 20,000 larvae, infestation developed almost equally in those fed on the poor diet and those fed on the high-protein diet. The groups fed on the low plane of nutrition successfully withstood subsequent challenge doses of up to 300,000 larvae. In these experiments, previous exposure to infestation apparently exercised more influence on resistance than did diet.

CUNLIFFE, G. & CROFTON, H. D. (1953). **Egg sizes and differential egg counts in relation to sheep nematodes.**—*Parasitology.* 43, 275-286. [Abst. from authors' summary.] 1175

The authors gave details of the linear dimensions of eggs of *Haemonchus contortus, Cooperia curticei, Trichostrongylus axei, T. vitrinus, Bunostomum trigonocephalum, Chabertia ovina, Oesophagostomum venulosum* and *Ostertagia* spp., together with the frequency distribution of such dimensions for each species. They described a method of species differentiation based on egg measurements, the construction of a classifying scale and the application of the method.

PORTER, D A. (1953). **Cross transmission of parasitic worms between cattle and sheep.**—*Amer. J. vet. Res.* 14, 550-554. [Abst. from author's summary.] 1176

Calves grazing pastures contaminated by cattle acquired appreciably more *Haemonchus contortus* than did lambs sharing the pasture; when lambs and calves followed infested sheep, the lambs acquired more than the calves. Calves grazing pasture further contaminated by cattle infested with *H. contortus* from both sheep and cattle acquired more worms than lambs.

Cooperia punctata and *C. pectinata* from cattle, developed in numbers 9–30 times, and 2–30 times greater, respectively, in calves than in lambs; *C. curticei* from sheep developed equally in calves and lambs.

Strongyloides papillosus from sheep was transmitted poorly to calves, and *Trichostrongylus colubriformis* from that host failed to develop in calves.

Moniezia expansa was acquired by both hosts, but *M. benedeni* only by calves.

Oesophagostomum radiatum, Nematodirus helvetianus, and *Ostertagia ostertagi* of cattle, were not transmitted to lambs, nor were *Oes. columbianum* and *Bunostomum trigonocephalum* of sheep, transmitted to calves.

THORSON, R. E. (1953). **Studies on the mechanism of immunity in the rat to the nematode, *Nippostrongylus muris*.**—*Amer. J. Hyg.* 58, 1-15. 1177

Six antigenic fractions, comprising polysaccharides and different proteins were extracted from larval *N. muris*. Secretions and excretions of larvae in rat serum and normal saline were also partly antigenic and showed lipolytic activity. It is suggested that immunity is dependent upon destruction by antibodies of enzymes secreted and excreted by invading larvae, with consequent inhibition of their activity.—M. L. CLARKE.

FAURÉ-FRÉMIET, E., EBEL, J.-P. & COLAS, J. (1953). Les inclusions protéiques de l'oeuf de *Parascaris equorum*. [**Protein inclusions in the eggs of** *Ascaris equorum*.]—*C. R. Acad. Sci., Paris.* **237**, 629-631. **1178**

The authors demonstrated that the hyaline spheres described by Van Beneden in the egg of *A. equorum* are protein in nature.

—JAS. G. O'SULLIVAN.

OLIVER-GONZÁLEZ, J. (1953). *In vivo* **inhibition of blood agglutinins by polysaccharides from animal parasites.**—*Proc. Soc. exp. Biol., N. Y.* **82**, 559-561. **1179**

Intravenous inoculation of rabbits and monkeys with polysaccharides of *Ascaris lumbricoides* and *Trichinella* larvae from muscle, caused an inhibition of A_2 isoagglutinins and also of the cold agglutinins.

—JAS G. O'SULLIVAN.

See also absts. **1324** (streptococcal decapsulation test for detection of hyaluronidase activity in parasites); **1329** (report, Northern Rhodesia); **1330** (report, Swaziland); **1338** (book, helminthology).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

SIKORA, A. (1953). Beitrag zur Nebennierenkarzinomatose des Pferdes. [**Carcinoma of the adrenal gland in horses.**]—*Mh. VetMed.* **8**, 241-243. **1180**

The only lesion found at slaughter of a seven-year-old mare, which had shown cardiac and muscular weakness, and was in only moderate condition despite a good appetite, was a carcinoma of one adrenal gland. S. discussed the clinical features of the case in relation to disturbance of adrenal cortical function.

—E. COTCHIN.

GREENE, H. S. N. (1953). **The transplantation of human brain tumours to the brains of laboratory animals.**—*Cancer Res.* **13**, 422-426. **1181**

Of a series of benign and malignant brain tumours from human beings, only the malignant (glioblastomas) were successfully transplanted in the brain of g. pigs and mice. Glioblastoma, along with medulloblastoma, represent the sole exceptions so far encountered to the rule that only metastasizable tumours are heterotransplantable. No transfer of the glioblastomas from the brain to sites other than the brain or eye was successful. It appeared that the failure to grow was due to an inability to elicit a stroma-producing reaction, and this may explain why glioblastoma, although a malignant tumour, does not metastasize—or, rather, why it does not form a recognizable tumour even if tumour cells are transferred in the blood to other parts of the body.

—E. COTCHIN.

LAW, L. W. (1952). **The flexed-tail-anemia gene (f) and induced leukemia in mice.**—*J. nat. Cancer inst.* **12**, 1119-1126. **1182**

Reciprocal crosses were made between a strain of mice highly susceptible to the development of leucaemia following painting with methylcholanthrene, and a strain of low susceptibility which was also homozygous for three recessive genes—shaker-2, waved-2, and flexed tail (f)—of which the first two are linked. The incidence of leucaemia was significantly higher in F_1 hybrids obtained from mating with "high-leucaemic" females. Flexed-tail (ff) segregants obtained in the backcross to the "low-leucaemic" strain were more susceptible to induced leucaemia than were their normal sibs (Ff). The findings suggested that the flexed tail gene directly influences susceptibility to leucaemia.—E. COTCHIN.

BRYANT, R. L., EVELETH, D. F., BOLIN, F. M. & MORENG, R. E. (1953). **Reducing leucosis through selective breeding.**—*Bi-m. Bull. N. Dak. agric. Exp. Sta.* **26**, 67-69. **1183**

In a five-year study of the value of selective breeding in reducing losses among fowls, particularly from leucosis, the authors used two strains, one selected for low mortality from disease and a control strain bred without such selection. The mortality rate in the selected strain decreased from 32·3% to 13·0%, whereas there was no decrease in the death rate in the controls.—F.E.W.

EYESTONE, W. H. (1953). **The behavior of a transmissible lymphoid tumor in the tissues of chickens inbred for resistance and susceptibility to spontaneous lymphomatosis.**—*Amer. J. vet. Res.* **14**, 594-600. [Abst. from author's summary.] **1184**

The progressive development at the site of implantation, the later course and the terminal spread of a malignant lymphoid tumour (RPL 16) in chickens showed striking uniformity in birds inbred for resistance and susceptibility respectively to lymphomatosis. Metastatic tumour cells were seen in the visceral organs of both groups. Following necrosis of

the blood vessels, tumour cells entered the circulation and rapidly accumulated in the liver sinusoids, kidney, and proventriculus, causing haemorrhage and necrosis, and death a day or two later. Systemic proliferative response was most marked in the resistant birds. The cellular implant is therefore able to overcome inherited resistance to naturally occurring lymphomatosis.

NUTRITIONAL AND METABOLIC DISORDERS

François, A.-C., Leroy, A.-M. & Zelmen, Zelter, S. (1953). Antibiotiques et phénomènes digestifs chez le ruminant. **[Action of antibiotics on digestion and on microflora of the digestive tract, in ruminants.]**— *C. R. Acad. Sci., Paris.* 236, 2547-2549. **1185**

Aureomycin, incubated anaerobically with 29 g. lucerne and 250 ml. rumen fluid depressed the degradation of cellulose by 35% at a dosage of 76 mg./kg. dry substrate. Streptomycin had a slight depressant effect; penicillin, chloramphenicol and dihydrostreptomycin had none.

—N. Dean.

Nordskog, A. W. & Johnson, E. L. (1953). **Breed differences in response to feeding antibiotics.**—*Poult. Sci.* 32, 1046-1051. [Authors' summary modified.] **1186**

Twelve pens of chicks having nine kinds of breeding (inbreds, outbreds, crossbreds, and top-crosses of both Mediterranean and general purpose breeds) were fed rations with and without antibiotics (penicillin and aureomycin) to 8 weeks of age. A total of 2,454 chicks were involved from 3 hatches. Chicks fed the antibiotic rations gained an average of 12·7% more than the controls, the gain for the different breed groups varying from 6·3% to 22·6%. The differential response of the breed groups to antibiotics was found to be highly significant statistically.

Increased viability resulted from feeding antibiotics; pens on the control ration averaged 9·1% mortality as compared with 3·7% in those given antibiotic supplements. This difference was highly significant.

Migicovsky, B. B., Nielson, A. M., Gluck, M. & Burgess, R. (1951). **Penicillin and calcium absorption.** [Correspondence.]— *Arch. Biochem. Biophys.* 34, 479-480. **1187**

Of two groups of day-old chicks fed a low-calcium rachitogenic diet one received a penicillin supplement, 30 mg./kg. for 2 weeks. All were then given an oral dose of radio-active calcium and 48 hours later the tibiae of each group were pooled and examined for Ca. There was a marked increase in the absorption index of Ca in the penicillin-supplemented over the untreated group.—F.E.W.

Harvey, J. M. (1953). **The nutritive value of some Queenland fodders.**—*Qd. J. agric. Sci.* 9, 169-184. **1188**

The nutritive value in terms of chemical composition, apparent digestibility, total digestible nutrients, metabolizable energy and starch equivalent of a number of Queensland fodders was determined directly on Merino wethers, 2–3 years old.

Cereal grains and by-products (with the exception of sorghum grain), cotton-seed, coconut meal, meat meal, lucerne chaff and cereal chaffs yielded data comparable with those recorded in other countries.

Data for Mitchell grasses (*Astrebla* spp.) and Rhodes grass (*Chloris gayana*) indicated low dry matter digestibility and digestible protein content. Supplementation of cereal chaff and Rhodes grass with cotton-seed or meat meals increased dry matter digestibility.

The leaves of the edible trees mulga (*Acacia aneura*), kurrajong (*Brachychiton populneum*) and wilga (*Geijera parviflora*) were estimated to be suitable only as maintenance diets for sheep.—R. L. Reid.

Hoflund, S., Holmberg, J. & Nihlén, H. (1953). **On the aetiology, pathogenesis and clinical picture of fat necrosis in cattle.**— *Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 642-652. [In English. French and German summaries.] **1189**

The authors described 20 cases of illness in cattle, in which fat necrosis was found at P.M. examination, and discussed the aetiology and pathogenesis of the condition. Electrophoresis of serum from affected cattle showed that there was a marked increase in the β-globulin fraction. Fat from necrotic fatty tissue had a higher concentration of cholesterol and a higher melting point than normal fat.—R.M.

Lewis, E. F. & Burrow, H. (1953). **The effect of dihydrotachysterol on bovine blood calcium, inorganic phosphate and sugar levels.** — *Brit. Vet. J.* 109, 521 - 525. [Authors' summary modified.] **1190**

The authors studied the effect upon blood mineral levels of the injection and oral administration of dihydrotachysterol in four cows. The blood calcium was raised and maintained at a higher level and the phosphate level was

initially depressed in each cow. Sugar levels increased. Oral administration produced a slower but more sustained response than that obtained by i/m injection. It is suggested that the drug may be of value in retarding the development of milk fever and in preventing the relapse of cases treated by ordinary methods.

ANON. (1953). **Urea in rations for cattle and sheep. A summary of experiments at the Oklahoma Agricultural Experiment Station 1944 to 1952.**—*Bull. Okla. agric. Exp. Sta.* No. B-409. pp. 35. **1191**

Experiments in metabolism crates and under farm conditions have shown urea to be an effective protein supplement for maintenance, for wintering and fattening cattle, for breeding cows and bulls and breeding ewes. It was not so efficient as the customary protein foods for fattening lambs. It could be fed up to 30% of the total nitrogen content of the ration, or 3% of the total concentrates. Mixing must be thorough and is not recommended as a farm procedure. Adequate carbohydrate must be provided to obtain full utilization of urea. Methionine supplements seem to increase its utilization: phosphorus and vitamin A metabolism are unaffected by incorporation of urea in the ration.

Poisoning is unlikely except in gluttonous or fasted animals, or those unaccustomed to urea feeds: 20 g. urea per 100 lb. body wt. may give rise to colic, incoordination, depression, tetany and bloat with death in 3 hours. Toxicity is due to excessive production of ammonia. There are no characteristic tissue changes.—JOHN SEAMER.

PLOUGH, I. C., PATEK, A. J., JR. & BEVANS, M. (1952). **The relative effects of protein, choline, and methionine in the treatment of experimental dietary cirrhosis in the rat.**—*J. exp. Med.* **96,** 221-231. [Abst. from authors' summary.] **1192**

Cirrhosis of the liver was produced in rats by feeding a diet low in protein (4% casein) and deficient in lipotropic factors, the degree of cirrhosis being determined from biopsy specimens. Comparable groups were then treated by feeding diets containing 4% and 30% casein respectively, the former supplemented with choline and methionine and the latter with and without added choline. Those fed the low protein diet with choline and methionine remained feeble, growth remained stunted, and the liver lesions progressed. In contrast, those fed the higher protein diet (with or without added choline) grew normally, and the liver lesions showed signs of arrest and regression.

WOLBACH, S. B. & HEGSTED, D. M. (1953). **Perosis. Epiphyseal cartilage in choline and manganese deficiencies in the chick.**—*Arch. Path.* (*Lab. Med.*) **56,** 437-453. [Authors' conclusions modified.] **1193**

The skeletal manifestations of perosis are the result of retardation or suppression of epiphyseal cartilage sequences, including proliferation of cells, growth of cells, matrix formation, and maturation. The growth of endochondral bone is retarded or suppressed. Bowing of the bones of the hock joint results from loss of strength following disappearance of the bone-lined cartilage tunnels of the metaphyseal region. Osteogenesis *per se* is unaffected; this explains the thickness of shortened bones resulting from suppressed endochondral bone formation.

Histological study is required for the pathological characterization of perosis and for the appraisal of experimental results. The changes in epiphyseal cartilages in manganese and choline deficiencies are almost precisely similar. The authors found only minor differences in amount and character of the matrix and in cytology. It seems highly probable that both manganese and choline are operative in a common biochemical system in chicks, essential only for metabolism of the epiphyseal cartilage cells. The epiphyseal cartilage changes are distinctive, and the name perosis should be restricted to conditions in which such lesions are present.

HEGSTED, D. M., FINCH, C. A. & KINNEY, T. D. (1952). **The influence of diet on iron absorption. III. Comparative studies with rats, mice, guinea pigs, and chickens.**—*J. exp. Med.* **96,** 115-119. **1194**

All the species absorbed more iron when on a maize diet than on a normal diet, and stored more in the liver. There are appreciable individual variations in absorption and storage of large amounts of iron; chicks and mice deposited larger quantities in the liver.—N. DEAN.

DYRENDAHL, S. (1951). Kalium som tillväxtfaktor. **[Potassium as a growth factor.]**—*VI. Nord. Veterinärmötet.* [Proceedings of a Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th - 11th, 1951.] pp. 422-425. [In Swedish. Abst. from English summary.] Discussion pp. 425-426. **1195**

D. discussed the mechanism by which

potassium exerts a growth promoting effect in rats fed hay from soil manured with potassium, or fed a diet supplemented by potassium salts. —R.M.

BOUCKAERT, J. H. & OYAERT, W. (1953). **Some factors affecting the magnesium content of cow's blood.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 571-573. [In English. French and German summaries.] **1196**

The authors found no difference in the Mg content of grass from farms affected with grass tetany and farms not affected. Seasonal variations in the Mg content of the blood occurred in cows on 10 different farms. The effects of injection of insulin or glucose on the K and Mg levels in the blood of cows were studied.—R.M.

BLAXTER, K. L. & ROOK, J. A. F. (1953). **The effect of Mg deficiency on the energy exchange of calves.**—*J. Physiol.* **121,** No. 2. pp. 48P-49P of Proceedings. **1197**

Calves fed a ration with a low magnesium content (4·4 mg./100 ml.) developed tetany. Increase in heat production and in CO_2 production coincided with the appearance of tetany and became more marked with a greater degree of magnesium deficiency.—R. MARSHALL.

FIELD, H. I. (1953). **The influence of copper on the growth rate of cattle.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. 1, Pt. 1. 566-571. [In English. French and German summaries.] [This abst. supersedes abst. 525 which was found to require amendment.] **1198**

The author studied copper deficiency in Hereford and Cross-bred Hereford cows with their suckled calves on reclaimed land, mostly black fen over peat and sand in West Suffolk.

In autumn 1950 twelve pregnant cows were divided into two equal groups, one group being given 10 g. copper sulphate at fortnightly intervals throughout pregnancy while the other was left as an undosed control group. Calves were born at pasture and remained with their dams until weaning in the autumn. The treated cows produced calves which throve well, but of the 6 control cows one proved barren, one gave birth to a dead calf, and the remaining 4 had calves which developed symptoms of deficiency at 2–3 months. The calves were weighed at birth and again in autumn when they were weaned: those from dosed cows made an average daily wt. gain of 2·2 lb. while those from undosed cows gained only 1·5 lb. After weaning they were yarded and given a daily ration of hay and a mixture of sugar beet pulp, dried grass meal and crushed oats, on which ration both groups made an average daily wt. gain of 1 lb.

In 1950, in the autumn following their first summer at pasture, 27 deficient calves were singled out for observation. They were kept in yards in the winters of 1950-51 and 1951-52 to facilitate handling, and received the same ration as the calves in the previous experiment: in the summers of 1951 and 1952 they were at pasture. These calves were divided into 3 groups, A, B and C. Group A received 5 g. copper sulphate once a fortnight in the winter of 1950-51 and 1 lb. of anti-teart cake daily in the following winter: group B (the controls) received no copper supplement during either of the winters. Group C received 1 lb. anti-teart cake (containing approx. 2 g. $CuSO_4$) in the first winter, and no copper in the second winter. In the summer of 1951 there was no difference in clinical condition between the calves of the three groups, and it was only in the autumn of 1952 that obvious differences were noted: at this time the animals in group B (the controls) developed a profuse watery diarrhoea and rapidly lost condition, becoming emaciated and hidebound. During the period May 1951 - October 1952 Group A made an average wt. gain of 551 lb., Group B (controls) gained 348 lb. and Group C gained 449 lb.

From the results of these two experiments the author prepared a table giving estimated live-weight gains in normal and deficient cattle from 0–30 months of age.

The author's observations show that the provision of copper to deficient cattle in winter enables them to build up reserves and make a normal gain in the following summer.

ALVAREZ BETES, J. (1953). Rapport à l'étude de l'ostéomalacie par aphosphorose des vaches laitières. [**Osteomalacia due to phosphorus deficiency in milch cows.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 580-584. [In French. English and German summaries.] **1199**

The author reported 22 cases of osteomalacia in Friesian cows in Spain. The calcium content of the blood was 7–13 mg.%; in 16 cases the phosphorus content of the blood was below 4·7 mg.%, and between 4·7–7·2 mg.% in the remainder. Treatment with large doses of vitamin D and phosphates was successful. —R.M.

MILLEN, J. W., WOOLLAM, D. H. M. & LAMMING, G. E. (1953). **Hydrocephalus associ-**

ated with deficiency of vitamin A.—*Lancet.* **265,** 1234-1236. [Abst. from authors' summary.] **1200**

In a study of hydrocephalus occurring in young rabbits as a direct consequence of vitamin-A deficiency in the dam, the underlying cause of the lesion was found to be stenosis of the cerebral aqueduct. The hydrocephalus was considered to be responsible for the constriction of the optic nerves and for paralysis which occurred in these animals.

The authors discussed these findings in relation to genetic hydrocephalus in human beings and to reports on the effects of vitamin-A deficiency on laboratory and farm animals.

The discovery of maternal vitamin-A deficiency as a cause of hydrocephalus in the progeny throws open an entirely new field for clinical investigation into the pathology of hydrocephalus, and for experimental observation on the physiology of the c.s.f.

COLLINS, R. A., BOLDT, R. E., ELVEHJEM, C. A. & HART, E. B. (1953). **Further studies on the folic acid and vitamin B_{12} content of cow's milk.**—*J. Dairy Sci.* **36,** 24-28. **1201**

Breed and season do not affect the folic acid or vitamin B_{12} content of cow's milk: colostrum has higher values than milk.

—JOHN SEAMER.

BALDISSERA NORDIO, C. (1953). Influenza della vitamina B_{12} nell'anemia da cipolle. **[The influence of vitamin B_{12} in anaemia caused by onions.]**— *Zootec. e vet.* **8,** 243-248. **1202**

Anaemia was produced in three rabbits by feeding 500 g. raw onions daily for 35 days. At the end of this period two of them were each given 5 μg. vitamin B_{12} daily. There was no significant improvement of the blood picture as a result of treatment with vitamin B_{12}; the small number of animals used and the limited scope of the experiments did not justify a definite conclusion.—R.M.

GIUNCHI, G., FIDANZA, A., SCURO, L. A. & SORICE, F. (1953). Influenza della penicillina, diidro-streptomicina, cloramfenicolo ed aureomicina sull'accrescimento e sulla comparsa di anticorpi circolanti antieritrocitari in ratti alimentati con dieta priva di acido pantotenico. **[Effect of penicillin, dihydrostreptomycin, chloramphenicol and aureomycin on increase and form of circulating antibodies in rats on a pantothenic acid-deficient diet.]**—*Int. Z. Vitaminforsch.* **25,** 1-7. [In Italian. English, French and German summaries.] **1203**

Reduction in the amount of antibodies observed in rats given a diet lacking pantothenic acid was remedied by incorporation of antibiotics into their diet.—E.G.

BLAXTER, K. L. & SHARMAN, G. A. M. (1953). **Prevention and cure of enzootic muscular dystrophy in beef cattle.** [Correspondence.] —*Nature, Lond.* **172,** 1006-1007. **1204**

Muscular dystrophy occurs in spring calves when the dams have been housed since the previous autumn. It is apparently due to the low α-tocopherol content of the feed, as the serum of the affected calves has a low α-tocopherol content. When α-tocopherol acetate was administered to both dam and calf the condition did not occur; when it was administered to calf only or dam only the incidence was limited to 25% and the condition was less severe.

—R. MACGREGOR.

BLAXTER, K. L. & WOOD, W. A. (1953). **Some observations on the biochemical and physiological events associated with diarrhoea in calves.**—*Vet. Rec.* **65,** 889-892. [Abst. from authors' summary.] **1205**

The authors summarized information obtained incidental to metabolic experiments with calves with reference to alimentary disturbances: this included data on the composition of faeces from healthy and scouring animals; bacterial counts and metabolic adjustments of the host. They summarized a number of experiments in which scouring was induced. They discussed the aetiology of scouring, and suggested that bacteria play a secondary role in its inception, though not necessarily in its ultimate outcome.

HADLOW, W. J. (1953). **Adrenal cortical atrophy in the dog. Report of three cases.** —*Amer. J. Path.* **29,** 353-361. **1206**

H. reported 3 cases of spontaneous atrophy of the cortex of the adrenal gland in the dog. The symptoms were listlessness, anorexia, vomiting, and loss of weight. A morphological resemblance of the lesion to the adrenal changes in some cases of Addison's disease in man was evident. Likewise, the cellular changes in the anterior hypophysis were similar to those which have been described in Addison's disease. H. believed this to be the first report of atrophy of the adrenal cortex in the dog.

—R.M.

DE BODO, R. C. & SINKOFF, M. W. (1953). **The role of growth hormone in carbohydrate metabolism.**—*Ann. N.Y. Acad. Sci.* **57,** Art. 2. 23-60. **1207**

Adrenalectomized dogs, maintained on deoxycortone acetate (DOCA), are less hypersensitive to insulin and have less secondary hypoglycaemia following a glucose tolerance test than adrenalectomized-hypophysectomized dogs, indicating a factor other than A.C.T.H. in the influence of the pituitary on carbohydrate metabolism. The use of adrenalectomized-gonadectomized dogs and hypophysectomized dogs receiving thyroxine eliminated the gonadotrophins and thyrotrophin as the additional factor.

Growth hormone abolishes the insulin hypersensitivity and secondary hypoglycaemia in hypophysectomized dogs, but only at levels toxic on prolonged administration. It also abolishes insulin hypersensitivity in adrenalectomized - hypophysectomized dogs. When hypophysectomized dogs have been restored to a normal carbohydrate metabolism by a cortisone regimen growth hormone can be administered with no further effect on the carbohydrate metabolism, a lack of toxic signs and a rise in renal functions.

It is suggested that the pituitary factor demonstrated in the first experiments is growth hormone, which exerts its action in balance with the adreno-cortical steroids.—A. SEAMAN.

GILLIS, M. B., NORRIS, L. C. & HEUSER, G. F. (1953). **Phosphorus metabolism and requirements of hens.**—*Poult. Sci.* **32,** 977-984. **1208**

The authors found that laying fowls utilized inorganic phosphorus, in the form of defluorinated phosphate or dicalcium phosphate, approx. twice as effectively as the phosphorus in phytin either as purified calcium phytate or as present in common plant feeding stuffs. For egg production and maintenance of body wt. the requirement of inorganic or "available" P appeared to be 0·5%, while 0·6% was apparently required for the maintenance of optimum blood levels and the prevention of decalcification of bone.—F.E.W.

EAYRS, J. T. (1953). **Thyroid hypofunction and the development of the central nervous system.** [Correspondence.]—*Nature, Lond.* **172,** 403-404. **1209**

The size and distribution of cortical vessels and numbers of axons and dendrites of cretinous rats differ from the normal. E. discussed the possible significance.—JOHN SEAMER.

LAMBERG, B.-A. (1953). **Radioactive phosphorus as indicator in a chick assay of thyrotropic hormone.**—*Acta med. scand.* Suppl. No. 279. pp. 9-79. [In English.] **1210**

An account of investigation made to elaborate a method for the assay of thyrotropic hormone using radio-active phosphorus. S/c injections of 2–12 microcuries of P^{32} with a carrier of sodium phosphate were made in chicks, 1–3 days old, and the uptake of P^{32} was found to have increased, proving radioactive phosphorus to be an adequate indicator of thyroid activity and useful in the assay of small amounts of thyrotropic hormone.

—F.A.A.

MUKHERJEE, D. P., JAWA, S. S. & BHATTACHARYA, P. (1953). **The effect of feeding thyroprotein on semen quality and on some physiological conditions of goats. III. Effect on pulse rate, rate of respiration, body temperature and body weights.**—*Indian J. vet. Sci.* **23,** 15-24. **1211**

When thyroprotein was administered in the food at the rate of 1 g. per goat per day, the pulse rate and body temperature increased, but the body weight decreased. The authors studied the effects of air temp., relative humidity and rainfall on the pulse rate, respiration rate and body temperature. Some differences were noted between goats fed thyroprotein and untreated goats.—R.M.

GARM, O. (1951). Undersøkelser over Paresis puerperalis hos ku. **[Observations on milk fever in cows.]**—*VI. Nord. Veterinärmötet.* [Proceedings of a Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th-11th 1951.] pp. 288-314. [In Norwegian. Abst. from English summary.] Discussion pp. 314-321. **1212**

G. compared the w.b.c. count in cases of milk fever with that in normal parturition, and compared the weights and macroscopic appearance of the adrenal, pituitary, pineal, thyroid and parathyroid glands in milk fever with those of normal non-pregnant cows.

The adrenal, pituitary, thyroid and parathyroid glands of cows which died from milk fever were larger than, and presented certain other differences from, those of normal non-pregnant cows.

G. discussed the significance of the adrenal glands and their relation to potassium metabolism, and described a method of treatment of milk fever by the administration of potassium

salts. He claimed that milk fever could be prevented in susceptible cows by the administration of 20–25 g. ammonium chloride in the food twice daily before and after calving.—R.M.

TALSMA, D. (1953). **Investigations into the results of some therapies against acetonaemia post partum.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 536-540. [In English. French and German summaries.] **1213**

T. compared the therapeutic efficacy of choline chloride, potassium chlorate, potassium chloride, sodium chlorate, adrenocorticotropic hormone, and exercise in acetonaemia of cows. Best results were obtained by the oral administration of 25–35 g. potassium or sodium chlorate twice daily combined with exercise for 30 min. daily. In each case the blood was examined for ketones before and after treatment.
—R.M.

See also absts. **989** (effect of vitamin C on tuberculous g. pigs); **1259** (ruminal fauna and flora); **1298** (reproductive disturbances in rats caused by riboflavin).

DISEASES, GENERAL

ANON. (1952). **Occupational hazards in microbiology.**—*J. Amer. med. Ass.* **150,** 1621-1622. [Condensed from *The Scientific Monthly.* Oct. 1952. Article by R. M. PIKE & S. E. SULKIN.] **1214**

This is a review of the infections of man acquired in the laboratory. A survey in the U.S.A. by the National Medical Advisory Council in 1950 revealed records of 1,334 cases in 20 years. There must also be other infections that are not recorded. It is of interest that sometimes infection in man is first recognized in the laboratory, as occurred with Q fever and louping-ill. In recent years infective jaundice has become the most common laboratory virus infection of man. TB. is recognized as so dangerous that some medical schools in the U.S.A. do not allow students to handle material containing living tubercle bacilli. Only about one fifth of laboratory infections are due to accidents: the others occur when all precautions that are thought reasonable are taken.
—E. G. WHITE.

ANON. (1952). **Scope and interpretation of the commoner biochemical tests.** pp. iii + 120. Johannesburg: South African Institute for Medical Research. 10s. 6d. **1215**

This moderate-priced book is a very useful publication for those engaged on biochemical tests in the veterinary profession, or those whose daily work brings them into contact with evaluation of biochemical data.

The book is designed with the object of ensuring that tests chosen are selected wisely and with due reference to the nature and stage of the disease being investigated, this being followed by correct evaluation of results. A useful added feature of the book is a comprehensive summary of normal findings. There is an alphabetical index.—D. S. PAPWORTH.

ALSTRÖM, I. & LAURITZON, I. (1953). **Provoking symptoms of pulmonary emphysema in horses aerogenically and alimentarily.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 669-674. [In English. French and German summaries.] **1216**

The authors described experiments using 3 horses in which latent pulmonary emphysema became active following exposure to hay dust containing *Aspergillus* or, in one case, following the oral administration of sulphanilamide. The pathogenesis and aetiology of pulmonary emphysema were discussed with regard to current theories.—R.M.

SCHEBITZ, H. (1953). Die Perlonnetzimplantation zur Deckung der Diastase bei der Hernia umbilicalis des Pferdes. **[Implantation of a net made of perlon (a polyamide plastic) in the treatment of umbilical hernia in foals.]** —*Mh. VetMed* **8,** 399-404. **1217**

A perlon net is sutured under slight tension to the outer sheath of the rectus abdominis, covering the rupture and forming a permanent support for the inner hernial sac. Quite large hernias can be thus treated.—J. E. SMITH.

BØHLER, N., GJESTVANG, P. & SLAGSVOLD, P. (1951). Visse rygglidelser hos storfe som årsak til såkalt " stallkrampe ". **[Lesions of the spinal column in " stallkrampe " (paresis of adult cattle).]**—*VI. Nord. Veterinärmötet.* [Proceedings of the sixth Scandinavian and Finnish Veterinary Conference, Stockholm. August 10th-11th, 1951.] pp. 109-113. [In Norwegian. Abst. from English summary.] Discussion pp. 113-115. **1218**

The authors described a paresis of adult cattle of both sexes (" stallkrampe ") characterized by stiff movement of the hind legs, and other symptoms of spastic paralysis of the leg muscles. They found severe spondylosis in 4 out of 10 cases and protrusion of the lumbosacral intervertebral disc in the remaining six.
—R.M.

CLARK, C. H. (1953). **Clinical signs of vagal nerve injuries in ruminants.**—*Vet. Med.* **48,** 389-391. 1219

Clinical signs of injury to the vagus nerve in ruminants are distension of stomach compartments with ingesta, reduced defaecation, gradual cessation of normal ruminal movements, dehydration and inappetence, the illness having a course of 3–4 weeks. C. described the P.M. findings and the causes of such injury.

—W. S. MARSHALL.

SASTRY, S. A. (1952). **Hidden disease of cattle in South Kanara district (Lumbar paralysis).** [Correspondence.]—*Indian vet. J.* **29,** 75-78. 1220

A note on a disease of unknown aetiology which produces mainly lumbar paralysis in cattle and buffaloes above 6 months of age. S. suggested that the symptoms resembled those of lumbar paralysis of goats, caused by *Setaria,* described in Japan and in Ceylon. [*V.B.* **22,** 2881.]—G. L. SHARMA.

BRANDLY, C. A. (1953). **Major poultry disease problems.**—*Canad. J. comp. Med.* **17,** 326-337. 1221

A review of many factors in the control of poultry diseases. They are considered under the headings of epizootiological factors, vectors, environmental factors, vaccines and vaccination, and therapy and management.

—R. GWATKIN.

VALADE, P., BUGARD, P., COSTE, E. & SALLE, J. (1953). Éléments de pathologie "sonique": le syndrome traumato-vibratoire expérimental. [**Pathological effects produced by sonic and ultrasonic waves.**]—*Bull. Acad. vét. Fr.* **26,** 113-122. 1222

Rabbits, dogs and g. pigs were subjected to the sound impulses of pulso-reactors, turbo-reactors and Prinonow's siren (25 kc. at 160 db.) and the ultra-sonic impulses of Hartmann's whistle. The animals' symptoms were studied and the following specific examinations performed: erythrocyte, eosinophile and total leucocyte counts, blood sugar values, urinary excretion of the 17-ketosteroids in the rabbits, electro-encephalography of the rabbits during and after the trauma and, finally, the detailed histology of many tissues. The results are described and discussed.—L. M. MARKSON.

HOLMAN, R. L. & JONES, C. K. (1953). **Protective influence of pregnancy on experimental collagen disease lesions.**—*Arch. Path.* (*Lab. med.*) **56,** 231-237. [Abst. from authors' summary.] 1223

Arterial lesions that closely resembled those of rheumatism, polyarteritis nodosa, and other collagen diseases in man occurred in all of 7 dogs and 7 non-pregnant bitches that were fed a standard high-fat diet for 8 weeks or longer and then subjected to what the author speaks of as a standard degree of renal insufficiency by the s/c injection of uranium nitrate or by bilateral nephrectomy. None of 5 pregnant bitches subjected to the same experimental procedure developed arterial lesions.

The mechanism of this protective influence of pregnancy was determined, but it was suggested that a hormonal factor rather than protection afforded by foetal kidneys was responsible.

See also abst. **1339** (book, diseases of poultry, rabbits and cagebirds).

POISONS AND POISONING

BERGMAN, E. N. & SELLERS, A. F. (1953). **Studies on intravenous administration of calcium, potassium, and magnesium to dairy calves. I. Some biochemical and general toxic effects.**—*Amer. J. vet. Res.* **14,** 520-529. [Abst. from authors' summary.] 1224

A study of the physiological and toxic effects of i/v injection into calves of calcium, potassium and magnesium salts and of sodium oxalate, using a constant-infusion mercury pump. Details were given of the max. safety tolerated rates of injection and of the lethal blood levels for Ca, K and Mg. When the rate of injection was high, toxic effects were obtained with a smaller total dosage and lower blood levels.

BUSTAD, L. K. (1953). **Toxicity of radioiodine.** *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 469-473. [In English. French and German summaries.] 1225

B. investigated the toxicity of radio-active iodine (I^{131}) for sheep, in order to determine to what extent contamination of pastures with radio-active waste products would be tolerated. Ingestion of 5 millicuries per day for $2\frac{1}{2}$ years had apparently no effect, but 240 millicuries per day caused serious digestive disorders and symptoms of thyroid deficiency after 6 months.

—R.M.

HOLM, L. W., RHODE, E. A., WHEAT, J. D. & FIRCH, G. (1953). **Treatment of acute lead**

poisoning in calves with calcium disodium ethylenediaminetetraacetate.—*J. Amer. vet. med. Ass.* **123**, 528-533. [Abst. from authors' summary.] **1226**

Of seven calves, poisoned with orally administered lead acetate and treated with calcium disodium ethylenediaminetetraacetate (Ca EDTA) subcutaneously as soon as severe distress of central nervous origin became apparent, four made remarkable recovery. Urinary- and faecal-lead levels indicated that Ca EDTA promoted rapid urinary excretion and enhanced biliary excretion of lead complexed as Pb EDTA.

STORMORKEN, H. (1953). **Methemoglobinemia in domestic animals.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 501-506. [In English. French and German summaries.] **1227**

S. established normal values for the methaemoglobin content of the blood of horses and cattle, and investigated methaemoglobinaemia which followed the administration of sodium nitrate, nitrite, chlorate, or acetanilide, at different dosages and by different routes of administration, to cattle and sheep. Pronounced methaemoglobinaemia in cattle was successfully treated by the i/v injection of 2 g. methylene blue in aqueous solution.—R.M.

WANNTORP, H. & SWAHN, O. (1953). **The toxicity of whey for swine in conjunction with bacterial reduction of nitrate to nitrite.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 496-501. [In English. French and German summaries.] **1228**

It is common practice to add as much as 0·75 g. potassium, sodium or calcium nitrate to a litre of milk used for cheese-making in order to suppress bacterial growth, in the course of which much of the nitrate is converted to nitrite. The authors studied the toxicity of nitrite-containing whey for rats and pigs. The LD_{50} for pigs was less than 90 mg. sodium nitrite per kg. body wt.—R.M.

RAPP, W. F., JR. (1953). **Organic rodenticides.**—*Neb. St. med. J.* **38**, 159-160. [Abst. from author's summary.] **1229**

The two most popular organic rodenticides used at present are "warfarin" (a coumarin derivative) and 1080 (sodium fluoracetate). The former is highly specific to rats and mice and the possibility of human poisoning is slight. On the other hand, 1080 is an extremely toxic non-specific poison, killing rats, mice, and human beings in a very short period of time.

GUILHON, J. (1953). Intoxications des animaux domestiques par les insecticides et les raticides. **[Poisoning of domestic animals by insecticides and rodenticides.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 473-478. [In French. English and German summaries.] **1230**

A general note on the great losses caused by weeds, insect pests, and rodents, and on the importance of chemical means of controlling them. G. stated that few of the preparations in use are harmful if applied according to the instructions given by the manufacturers.—A.S.

EICHLER, W. (1953). Biologische Testung von Kontaktinsektizidspuren bei Haustiervergiftungsfällen. **[Biological tests for traces of insecticides in animals poisoned by these agents.]** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 484-486. [In German. English and French summaries.] **1231**

A brief review, illustrated at the congress by a film, of methods using *Drosophila* or *Daphnia* for the quantitative estimation of dicophane (D.D.T.), benzene hexachloride and other contact insecticides.—R.M.

ANON. (1953). **Health problems of vaporizing and fumigating devices for insecticides. A supplementary report.**—*J. Amer. med. Ass.* **153**, 1232-1234. **1232**

The report refers to devices which employ heat to release insecticides into the atmosphere of buildings. D.D.T. or benzene hexachloride are the commonly used insecticides. The apparatus either rapidly projects the insecticide for a short period, or releases small quantities continuously over a long period. The latter use of insecticides is the more hazardous toxicologically, because it is employed in occupied buildings. The report recommends that the release of the insecticide, in this case, should be limited to 1 g. per 15,000 cu. feet in 24 hours. Reported cases of toxic reactions in human beings were mainly due to the use of defective equipment, and consisted of irritation of the eyes, or of the respiratory tract, individual idiosyncrasy to the insecticide, and sometimes, general intoxication due to excessive intake of the insecticide.—D. W. JOLLY.

SIMON, E. W. (1953). **Mechanisms of dinitrophenol toxicity.** — *Biol. Rev.* **28**, 453-479. **1233**

This paper constitutes a comprehensive review, together with a good bibliography of the mechanisms of dinitrophenol toxicity and

the physical, biochemical, and biological behaviour of the compound.

One particular section of interest to the veterinarian is that on the toxic action of dinitrophenol on animals and plants. This includes the effects on man and laboratory animals, the toxicity to insects and their eggs, and the mechanisms of toxic action. It is worth noting, however, that dinitrophenol is not so widely used as some of the other dinitro compounds, such as dinitro*ortho*cresol (DNOC), and dinitrobutylphenol (DNBP).

—D. S. Papworth.

Firkins, G. S. (1953). **Toxic algae poisoning.** —*Iowa St. Coll. Vet.* **15**, 151-153. 1234

A detailed account of poisoning of large numbers of water-fowl of various species, and of 200 pheasants, 15 dogs, 4 cats, 2 pigs and various small wild mammals by a toxin from the alga, *Anabaena* in Storm Lake, Iowa in Oct. 1952. F. discussed factors which lead to an accumulation of the alga.—A. Seaman.

Webb, L. J. (1952). **Nitrate content and toxicity of Queensland plants.**—*J. Aust. Inst. agric. Sci.* **18**, 164-167. 1235

Fifty-five species of flowering plants in Queensland, representing many families, were found to contain nitrates in amounts which might render them toxic to grazing animals and even cause death or non-specific abortion.

Moon, F. E. & McKeand, J. M. (1953). **Observations on the vitamin C status and haematology of bracken-fed ruminants.**—*Brit. vet. J.* **109**, 321-326. 1236

The authors examined the blood picture and levels of vitamin C in the urine, blood plasma, and (at P.M. examination) in the organs of a bullock and two sheep which were fed with dried bracken until they died from bracken poisoning. There was no significant decrease in vitamin C levels up to the time of death. The daily administration by s/c injection of 300 mg. vitamin C to one of the sheep did not influence the course of the disease or the vitamin C content of plasma or urine.

The blood picture of the sheep was characterized by a progressive diminution in haemoglobin, r.b.c. and w.b.c. There was slight thrombocytopenia.—R.M.

Walters, C. S. (1952). **The effects of copper naphthenate and pentachlorophenol on livestock.**—*Proc. Amer. Wood Pres. Ass.* **48**, 302-311. Discussion pp. 311-313. 1237

W. conducted experiments with pigs, sheep, and cattle (calves and bullocks) to determine the toxicity of the wood preservatives, copper naphthenate and pentachlorophenol. The animals were kept for some months in wooden sheds in which the timber of the sheds, feeding troughs, gates and fencing had been impregnated with known amounts of the preservatives.

In addition 150 mg. pentachlorophenol was administered by mouth to one pig and 7 g. copper naphthenate to another. Seven ewes were given 40–175 mg. pentachlorophenol also by mouth and another seven were given 2·5–5 g. copper naphthenate. None of the cattle were dosed by mouth. Some of the experimental pigs and sheep were slaughtered at 1, 2 or 21 days following the treatment or the exposure and the amounts of the drugs present in various organs were determined. No harmful effects were noticed in any animal. W. considered that there was no relationship between these wood preservatives and hyperkeratosis of cattle.—R.M.

Bell, W. B. (1952). **The production of hyperkeratosis by the administration of a lubricant.** —*Virginia J. Sci.* **3**, 71-78. 1238

B. obtained two samples of a lubricant, one from a farm on which hyperkeratosis had occurred and the other from the manufacturers. Neither the type nor the composition of the lubricant is given. Both samples produced typical symptoms and lesions of hyperkeratosis when 5–15 g. were administered by mouth in capsule form for 13–22 consecutive days to 6 calves 1–2 months old. Symptoms first appeared 5–11 days after the first administration.—R.M.

Burdin, M. L. (1953). **Delayed toxicity in cattle following the use of trypanocidal phenanthridinium compounds.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 491-495. [In English. French and German summaries.] 1239

Following the mass inoculation of cattle in Kenya with dimidium bromide (2:7-diamino-9-phenyl-10-methyl phenanthridinium bromide) 13% developed symptoms of photosensitization and, by means of liver biopsy and the van den Bergh reaction, were found to have liver damage. Two other compounds with a similar chemical structure (2:7-diamino-9-*p*-aminophenyl-10-methyl phenanthridinium chloride and 2:7-diamino-9-α-thienyl-10-methyl phenanthridinium bromide) produced similar symptoms and lesions. Ethidium bromide (2:7-diamino-9-phenyl-10-ethyl phenanthridinium bromide) was not toxic at doses of up to 3 mg. per kg.

—R.M.

RADELEFF, R. D. & BUSHLAND, R. C. (1953). **Benzene hexachloride poisoning of emaciated sheep.**—*Vet. Med.* **48,** 53-58 & 60. **1240**

Emaciated lactating ewes developed toxic symptoms when dipped in one of 3 commercial preparations of benzene hexachloride containing 0·03–0·06% of the γ-isomer.

—C. C. BANNATYNE.

FUNG, K. F. (1952). Die Wirkung einiger Opiumalkaloide auf den isolierten Dünndarm des Pferdes. [**Effect of some opium alkaloids on the isolated small intestine of the horse.**] —*Inaug. Diss., Hanover.* pp. 16. **1241**

F. tested the action of various opium alkaloids on strips of isolated small intestine from horses. It was found that phenanthrene derivatives had a stimulating action on the smooth muscle of the intestine and that constipation following use of these alkaloids is due to their action on the centres of the autonomic nervous system.—E. A. HIRSCH.

STEVENS, K. M. & GRAY, I. (1953). **Studies on penicillin toxicity in guinea pigs.**—*Antibiot. & Chemother.* **3,** 731-740. [Spanish summary pp. 761-762. Abst. from authors' summary.] **1242**

Penicillin in doses of 20,000 units produced a mortality of 70% in g. pigs when the potassium salt was used, and a mortality of 93% when the procaine salt was used. The most striking sign was profound anorexia. Deaths occurred in three to four days in contrast to 7 to 12 days in g. pigs that died from starvation. Of 18 drugs given intraperitoneally, only adrenal cortical extract and cortisone altered the mortality, both of them increasing it.

No deviations from the normal were found in white cell counts, liver glycogen, or in the sodium, non-protein nitrogen, total protein, or glucose levels in the blood. Urinary studies revealed no differences from the changes found in starved animals. Catabolism of albumin and production of CO_2 were similar to those occurring in starved animals.

The uptake of S^{35}-L-methionine into the protein of liver slices of starved penicillin-treated animals was significantly higher than in starved animals which had not been dosed, but not significantly different from normally fed g. pigs.

An increased synthesis of liver protein is also found in irradiated animals. The authors discussed the close correlation between other effects of penicillin and irradiation with X-rays.

See also abst. **1330** (report, Swaziland).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

ANON. (1953). **Use and abuse of generic (coined common) names for pesticides.**—*J. Amer. med. Ass.* **152,** 818-821. **1243**

An account of a movement in the U.S.A. to avoid the confusion arising from the use of commercial and pseudo-scientific names for insecticide products. "Generic" names are coined for the basic active chemical substances common to many commercial insecticides, and these "generic" names appear on the products together with the trade names.

An official body, the Interdepartmental Committee on Pest Control, set up in 1947, worked for several years in collaboration with the Council on Pharmacy, of the American Medical Association, so that suitable simple names could be laid down for the active substances.

Now this work has been confided to the "Committee on Pesticides" of the U.S. Department of Agriculture, which elaborates "generic" names after consultation with manufacturers and representatives of the professions concerned.—A.S.

TOLSTOOUHOV, A. V. (1952). **The physical-chemical approach to the problems of chemotherapy.**—*Trans. N.Y. Acad. Sci.* **14,** 260-269. **1244**

Since with many drugs a relationship between chemical structure and biological action cannot be found it is considered that a physical-chemical approach to the problem should be made. The most important points to study are dissociation constants, iso-electric points, pH, and the solubilities of the complexes formed. Since the reaction between drug and tissue takes place on cell membranes, the semi-permeability of the cell membrane will be altered, thus altering the function of the cell.

—J. A. NICHOLSON.

OSGOOD, E. E. (1953). **Hypoplastic anemias and related syndromes caused by drug idiosyncrasy.**—*J. Amer. med. Ass.* **152,** 816-818. **1245**

A note on the differential diagnosis of hypoplastic anaemia in human beings, caused by idiosyncratic response to drugs. Where the con-

dition occurs the causative drug must immediately be withdrawn and steps taken to control anaemia and to stem any bacterial infection until normal cell division begins again in the marrow. The author gave a list of drugs which have been known to produce the condition.

—A.S.

BAUMANN, W. (1953). Über den Einfluss der Radix Gentianae auf die periphere Pansenautomatie und die Gasbildung im Panseninhalt des Rindes. **[Action of gentian root on motility of and formation of gas in the rumen.]**—*Schweiz. Arch. Tierheilk.* **95**, 535-542. [English, French and Italian summaries.] **1246**

Glycosides from gentian root inhibit the contractions of isolated strips of rumen or abomasum. The tonus is unchanged or depressed. Gaseous fermentation is increased by the glycosides or by cellulose particles from the root, but slightly decreased by gentian oil.

—N. DEAN.

DECOURT, P. (1953). Activité narcobiotique de dérivés de la phénothiazine et son importance thérapeutique. **[The narcotic action of phenothiazine derivatives on micro-organisms and highly developed animal life: the use of this action in therapy.]**—*C. R. Acad. Sci. Paris.* **236**, 1195-1197. **1247**

A note on the narcotic activity of various phenothiazine derivatives. The author found that narcotic activity was correlated with the power to prolong the conservation of blood and tissues *in vitro*.—A.S.

TALMAGE, R. V., TRUM, B. F., MONROE, R. A. & RUST, J. H. (1953). **The effect of phenothiazine N.F. (green) and phenothiazine N.F. purified on the uptake of I^{131} by the thyroid of the burro. A preliminary report.**—*J. Amer. vet. med. Ass.* **123**, 328-329. **1248**

With radio-active iodine the authors found that some preparations of phenothiazine N.F. (green) had a thyroid suppressing effect not possessed by phenothiazine N.F. purified. It is not known whether this effect is due to excess iodine or an anti-thyroid agent.—JOHN SEAMER.

VON WASIELEWSKI, E. & ALBRECHT, A. (1953). Bakteriologische Beitrag über den Wirkungsmechanismus des Chlorophylls bei der Desodoration. **[Bacteriological study on the deodorant action of chlorophyll.]**— *Z. Hyg. InfektKr.* **136**, 141-158. **1249**

The authors demonstrated in a series of experiments that *Proteus vulgaris* changed its metabolic behaviour in the presence of chlorophyll by producing less than the normal amount of H_2S, skatole and NH_3. The action of certain enzymes was enhanced in the presence of chlorophyll. This was believed to have been caused by an exchange of metallic ions between the coenzyme and the magnesium contained in chlorophyll. The chlorophyll molecule as a whole appeared to take part in this reaction since neither the magnesium ion nor magnesium free chlorophyll derivatives alone had a similar blocking effect on enzymes. Chlorophyll had no deodorant effect on strong smelling organic and inorganic substances *in vitro*.

—E.G.

WEINBERG, E. D. (1952). **The influence of various sources of nitrogen on the activity of antibiotics.**—*Antibiot. & Chemother.* **2**, 130-134. [Abst. from abst. in *Bull. Hyg., Lond.* **27**, 877-878. (1952).] **1250**

Penicillin is known to inhibit the uptake of certain amino-acids by some sensitive bacteria, and it has been suggested that amino-acid requirements and sensitivity to penicillin may be related in Gram-negative organisms. W. attempted to grow a strain of *Chromobacterium* in media containing an amino-acid or some other single added substance as the only source of nitrogen. For each source of nitrogen W. noted the growth-inhibiting action of several antibiotics (penicillin, terramycin, aureomycin, chloramphenicol and streptomycin). Two series of media were used, one containing phosphate, the other none. With no phosphate chloramphenicol and streptomycin were consistently inhibitory, aureomycin had no effect, and the other antibiotics were either without effect or actually promoted growth. In the presence of phosphate penicillin and bacitracin had no effect, while terramycin, aureomycin, chloramphenicol and streptomycin inhibited growth with all of the nitrogenous substances used. These results did not support the theory that penicillin sensitivity is related to the requirement of preformed amino-acids.—A.S.

HOSOYA, S., KOMATSU, N., SOEDA, M. & SONODA, Y. (1952). **Trichomycin, a new antibiotic produced by *Streptomyces hachijoensis* with trichomonadicidal and antifungal activity.**—*Jap. J. exp. Med.* **22**, 505-509. [In English.] **1251**

The authors isolated from the mycelium or culture filtrate of a species of *Streptomyces* from a soil sample from Hachijo Jima (a small island in the Pacific Ocean), a yellow antibiotic which they found to be active against *Trichomonas*

foetus and against *Trichophyton mentagrophytes, Botrytis bassiana* and *Candida albicans,* but inactive against bacteria. They proposed to name it trichomycin.—F.E.W.

HAMMOND, P. B. (1953). **Dihydrostreptomycin dose-serum level relationships in cattle.**—*J. Amer. vet. med. Ass.* **122,** 203-206. **1252**

The dosage of dihydrostreptomycin recommended for cattle is 5 mg. per lb. body wt. every 8–12 hours. Peak blood levels are reached in 1–3 hours. A dosage of 7·5 mg. per lb. did not give significantly higher blood levels. Small amounts were excreted irregularly in the milk.

—N. DEAN.

GRASSI, C. (1952). Sur la fixation de la streptomycine introduite par voie endotrachéale au niveau des alvéoles pulmonaires. [**Distribution of streptomycin in the pulmonary alveoli.**]—*Acta tuberc. scand.* **27,** 207-210. [In French. Abst. from English summary.] **1253**

G. found that the behaviour of streptomycin when injected by the intratracheal route was contrary to that of electropositive colloids; *i.e.,* after injection, streptomycin was firmly attached to the pulmonary tissue. When injected i/v or i/m it did not show such pulmonary attachment and it was not attached to any other organ, though still present in the blood serum. Penicillin, aureomycin and chloramphenicol were not attached to the pulmonary tissue after intratracheal injection, but after i/m or i/v injection they were present in other organs in small quantities. Only terramycin behaved in a manner similar to streptomycin, but to a lesser degree.

BOOGAERDT, A. (1953). Enige praktijk-indrukken van intraperitoneale penicilline-streptomycine injecties bij acute peritonitis van rund en schaap. [**Intraperitoneal injection of penicillin with streptomycin in the treatment of peritonitis in cattle and sheep.**]—*Tijdschr. Diergeneesk.* **78,** 683-685. [English, French and German summaries.] **1254**

An account of successful treatment of acute peritonitis following rumenotomy in a cow, and caesarian section in a cow and several sheep, by the intraperitoneal instillation of penicillin together with streptomycin in oil.

—C. A. VAN DORSSEN.

ELEK, S. D., HILSON, G. R. F. & JEWELL, P. (1953). **Laboratory aspects of combined antibiotic treatment.**—*Brit. med. J.* Dec. 12th. 1298 - 1300. [Authors' summary modified.] **1255**

There is both experimental and clinical evidence that two antibiotics used simultaneously may be more efficient (synergistic) or less efficient (antagonistic) in their action than either drug used alone. The authors described a simple method suitable for routine diagnostic work. It reveals interactions of the bactericidal effect of antibiotics *in vitro*. Sixty-five strains of common pathogens were tested against three pairs of antibiotics. Penicillin with either chloramphenicol or aureomycin generally showed antagonism. Streptomycin with chloramphenicol was generally synergistic. These results refer to interaction after 18 to 24 hours.

SENEVIRATNE, P. & PILLAI, P. B. K. (1953). **Intravenous anaesthesia by the use of kemithal sodium (I.C.I.)**—*Vet. Rec.* **65,** 537-539. [Abst. from authors' conclusions.] **1256**

Kemithal [thialbarbitone sodium] seems to be a safe and efficient intravenous general anaesthetic for dogs and possibly other species of small animals, for use in operations lasting up to one and a half hours. Pre-anaesthetic excitation does not occur and the period of post-anaesthetic narcosis is short.

ELLIS, C. H., WNUCK, A. L., DE BEER, E. J. & FOLDES, F. F. (1953). **Modifying actions of procaine on the myoneural blocking actions of succinylcholine, decamethonium and *d*-tubocurarine in dogs and cats.**—*Amer. J. Physiol.* **174,** 277-282. **1257**

Procaine alone (4 to 64 mg./kg.) did not affect myoneural transmission, but intensified (at 16 mg./kg.) the neuromuscular blocking due to *d*-tubocurarine injected before or after the procaine, or that of succinylcholine or decamethonium injected before the procaine; in these last two cases, injection of procaine before the relaxant antagonised the latter.

—F. R. HARRIS.

See also absts. **964** (effect of aureomycin on production of penicillinase); **966** (penicillin resistance of *Str. agalactiae*); **967** (effect of antibiotics on milk products); **982** (*iso*-nicotinic acid hydrazide in bovine TB.); **985** (A.C.T.H. and adrenal cortical extract in TB. of swine); **987** (evaluation of antituberculous agents); **1036** (effect of antibiotics on *Cl. botulinum*); **1052** (trypanosomiasis); **1062** (histomoniasis); **1072** (antibiotic treatment of *Anaplasma* carriers); **1147** and **1161** (parasiticides); **1169** and **1173** (anthelmintics); **1185** (action of antibiotics on ruminant digestion and flora); **1186** (response to feeding antibiotics to chicks); **1203** (effect of antibiotics on antibody production in rats); **1229-1233** (rodenticides and insecticides); **1239** (phenanthridinium); **1240** (benzene hexachloride poisoning in sheep); **1242** (penicillin toxicity); **1309** (antibiotics for treatment of low fertility); **1325** (preparation and maintenance of sterile ophthalmic solutions).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

PHILLIPSON, A. T. (1953). **Digestion in the ruminant.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 518-524. [In English. French and German summaries.] 1258

A paper summarizing the greater part of the work on digestion in ruminants, carried out in the United Kingdom during the last five years. P. considered the matter from the points of view of the nervous control of the stomach, the movement of food through the stomach, chemical changes in the rumen, and absorption.
—A.S.

SPISNI, D. (1952). Della microfauna e della microflora del rumine. **[The microfauna and microflora of the rumen.]**—*Ann. Fac. Med. vet., Pisa.* **5,** 61-99. [English and French summaries.] 1259

This is a review of the literature on the subject, dealing with (1) the physiological and chemical attributes of the infusoria in the rumen; (2) the characters, numbers and chemical composition of the ruminal bacteria, and their role in the synthesis of proteins and B group vitamins and in the digestion of cellulose; and (3) the factors which influence the development of bacteria in the rumen.
—I. W. JENNINGS.

KRAYBILL, H. F., BITTER, H. L. & HANKINS, O. G. (1952). **Body composition of cattle. II. Determination of fat and water content from measurement of body specific gravity.** —*J. appl. Physiol.* **4,** 575-583. 1260

Measurement of the specific gravity of eviscerated cattle carcasses by hydrostatic weighing showed this to range from 1·0 to 1·070 with a mean value of 1·045, the fat content varying from 13·6 to 39·5% of the body weight, the average being 25·1%. An inverse ratio between body water and body specific gravity was found. Theoretical equations showing the relationship between body specific gravity, body water and body fat were derived.
—J. A. NICHOLSON.

PAL, R. D. (1952). **Effects of summer on temperatures of buffalo calves.**—*Indian vet. J.* **29,** 210-222. 1261

A study of recorded body temperature data for healthy Indian domestic buffaloes of various age groups during January-February and May-June 1951 revealed that this species is unable to lose body heat freely, this being most apparent in calves less than a year old. It is therefore necessary to provide a cool environment for them in summer.—H. S. DHILLON.

MASON, M. M. & SCHEFLEN, A. M. (1953). **Senility in dogs.**—*Cornell Vet.* **43,** 10-19. [Abst. from authors' summary.] 1262

The authors carried out pathological and clinical observations on 9 dogs with an average age of 13 years, attempting as far as possible to correlate neuropsychiatric and neuropathological changes. These changes were compared with those in psychotic senile human beings.

Decreased perception and a lower reactivity to stimuli were characteristic, and the authors noted defects in memory, orientation, and habitual behaviour; irritability and anger reactions; snapping at imaginary objects; and such neurological signs as posterior weakness, tremors, and ataxia. These defects are very similar to those of psychotic senile human beings. Among the neuropathological findings were neurone changes, perivascular haemorrhages attributed to terminal disease, gliosis, acellular foci and fibrosis attributed to chronic anoxia, and neuronophagia of undetermined cause. The arteriosclerosis and argentophilic plaques characteristic of human senility were not observed.

SJÖSTRAND, T. (1953). **Volume and distribution of blood and their significance in regulating the circulation.**—*Physiol. Rev.* **33,** 202-228. 1263

A review in which the experimental data from 124 references are arranged in three sections:—Variations in blood volume; Distribution and the regulation of circulation; and Volume and the regulation of circulation—to illustrate the thesis that in the recumbent human being an appreciable portion of the total volume is in reserve, both in the thorax and the rest of the body. The thoracic reserve, three-quarters of which is in the lungs, partially regulates vasomotor tone, and the frequency and stroke volume of the heart.

Blood volume, regulated by vasomotor tone and the rate of destruction of r.b.c. haemoglobin, is a decisive factor in working capacity.

The review includes a description of some of the methods used and a discussion of the errors involved.—A. SEAMAN.

MOTT, J. C. (1953). **The circulation of the thoracic cage in the dog and its reaction to haemorrhage.**—*J. Physiol.* **121,** 80-96. 1264

Haemorrhage caused less reduction of blood-

flow in the azygos vein and internal mammary artery than in the carotid artery, and much less than in the mesenteric or femoral arteries. Unless considerable anoxaemia was present the flow in the internal mammary artery was better maintained than that in a coronary or vertebral artery.

A reduction of flow following artificial respiration suggested that the activity of the respiratory musculature is responsible for the maintenance of its blood supply.—A. SEAMAN.

SEIP, M. (1953). **Reticulocyte studies. The liberation of red blood corpuscles from the bone marrow into the peripheral blood and the production of erythrocytes elucidated by reticulocyte investigations.**—*Acta med. scand.* Suppl. No. 282. pp. 164. [In English.] **1265**

S. reviewed over 350 references and reported detailed studies on human blood. He recommended brilliant cresyl blue for staining, and counts of 5,000 erythrocytes. Comparative differential reticulocyte counts in normal blood and sternal marrow showed that most of these cells are released at stage III, some at stage II, occasional cells at stage I; stage IV being confined to the peripheral blood. This was confirmed by counts on samples withdrawn after induction of hypoxia. Serial counts on incubated samples (37°C. in silicone-coated tubes) gave a characteristic maturation curve, from which erythrocyte production per cu. mm. of blood per time unit could be calculated. The mechanism of release of reticulocytes from the bone marrow was studied in the blood of patients after pneumoencephalography, vertebral angiography, injection of a cholinergic drug (" doryl "), epinephrine and A.C.T.H., the first three treatments being followed by significant rise in the reticulocyte level, indicating the existence of a blood-regulating centre in the brain, and the transmission of stimulating impulses *via* the parasympathetic nerve fibres. A significant rise in the reticulocyte level occurred in healthy individuals following injection of blood plasma from infants with erythroblastosis foetalis. Normally the flow of reticulocytes remains fairly constant from hour to hour, and only slightly less so from day to day and week to week. The mechanism governing erythrocyte production must therefore be very finely adjusted.—F.E.W.

DOUGHERTY, T. F. & FRANK, J. A. (1953). **The quantitative and qualitative responses of blood lymphocytes to stress stimuli.**—*J. Lab. clin. Med.* **42,** 530-537. **1266**

Two forms of lymphocyte occur in normal mice, the normal, and large basophilic stress cells. These are not decreased in number by adrenocortical stress, but are increased by stress in adrenalectomized mice.—JOHN SEAMER.

KAINER, R. A. & DICKSON, W. M. (1953). **An examination of the valves of the external jugular veins of the ox with reference to the selection of a site for venipuncture.**—*J. Amer. vet. med. Ass.* **123,** 523-526. [Authors' summary modified.] **1267**

The number of valves in the external jugular vein ranged from 2 to 7, with an average of 4·38 in 52 cattle. There were usually 3, 4 or 5 valves. The region of the anterior 10 to 12 cm. of the external jugular vein was found to be free from valves, and the authors suggested that this region is the best site for venipuncture.

They described the radicles of the external and internal jugular veins.

BAKER, J. R. (1953). **The expressions ' Golgi apparatus ', ' Golgi body ' and ' Golgi substance '.**—*Nature, Lond.* **172,** 617-618. **1268**

The name Golgi apparatus or Golgi substance, applied to structures stained with silver nitrate or osmium tetroxide should be abandoned as misleading, since the technique is not histochemically specific and the bodies so named differ widely in different cells. They are not all self-reproducing and some are probably artefacts.—N. DEAN.

BUSH, I. E. & FERGUSON, K. A. (1953). **The secretion of the adrenal cortex in the sheep.**—*J. Endocrin.* **10,** 1-8. [Abst. from authors' summary.] **1269**

Adrenal venous blood was collected from six anaesthetized sheep, of which two had been previously hypophysectomized. The blood was extracted and analysed for adrenocortical steroids by paper chromatography. In each case the predominant secretory product found in the extracts was 17 α-hydroxycorticosterone. Small amounts of corticosterone and a substance tentatively identified as 11 β-hydroxyandrost-4-ene-3,17-dione were also found in all the extracts. Only traces of other reducing steroids or $\alpha\beta$-unsaturated ketosteroids were found: their irregular appearance suggested that they were artefacts. It seems unlikely that the secretion of the adrenal cortex *in vivo* is as complex as the mixture of products released by the perfused cattle adrenal glands in the experiments of Hechter *et al* (1951).

GHADIALLY, F. N. (1953). **The effect of repeated injections of adrenaline on the haemopoietic**

tissues of the rabbit.—*J. Endocrin.* **10,** 9-11. [Author's summary copied *verbatim.*] **1270**

The effect of repeated injections of adrenaline on the blood and haemopoietic tissues of the rabbit was studied. A ' panhyperplasia ' of the marrow was produced. No change was detected in the lymph nodes. The peripheral blood showed no significant change in the total erythrocyte, total and differential leucocyte and Cook-Arneth counts.

VENZKE, W. G. (1953). **The morphogenesis of the adrenal glands of chicken embryos.**—*Amer. J. vet. Res.* **14,** 219-229. **1271**

Study of 420 chick embryos in serial, sagittal, transverse and frontal sections at 12-hour intervals from the 12th hour of inoculation until hatching revealed that large oval cells from the primary sympathetic nerve trunks on either side of the dorsal aorta cells migrate continuously into the adrenal glands throughout this period and transform into chromaffin tissue.

—W. S. MARSHALL.

LOBO, B. A. (1951). As glândulas do proventrículo da galinha (*Gallus domesticus*). Alguns aspectos de sua anatomia microscópica. **[The histology of the proventriculus of the fowl.]**—*Proc. Vth Congr. bras. Vet.* São Paulo, 1950. pp. 729-734. **1272**

L. described the morphology and staining reactions of the glands of the proventricular mucosa and confirmed that these are composed of collections of radiating glandular tubes emptying into a central excretory canal.

—I. W. JENNINGS.

See also abst. **1342** (book. colorimetric chemical analytical methods).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

FLEISCHMANN, S. (1952). Zur Altersbestimmung der Larven von Calliphora erythrocephala und Sarcophaga carnaria und ihre Brauchbarkeit in forensischen Fällen. **[Age determination of the larvae of *Calliphora erythrocephala* and *Sarcophaga carnaria,* and its use in legal cases.]**—*Inaug. Diss., Munich.* pp. 65. **1273**

F. determined the time between oviposition and hatching, duration of larval period, and length of larvae of *C. erythrocephala* and *S. carnaria* maintained under three different temperatures and on various foodstuffs.

—M. L. CLARKE.

LINK, V. B. & MOHR, C. O. (1953). **Rodenticides in bubonic-plague control.**—*Bull. World Hlth Org.* **9,** 585-596. [French summary. Abst. from authors' summary.] **1274**

The relatively recent development of more effective pulicides has been paralleled by the discovery of more efficient rodenticides. The authors discussed 8 of the latter—namely warfarin [3-(α-acetonylbenzyl)-4-hydroxycoumarin], pival (3 pivalyl-1,3-indandione), red squill, α-naphylthiourea (ANTU), zinc phosphide, arsenic trioxide, thallium sulphate, and sodium fluoracetate (1080)—with particular reference to the criteria of effectiveness against rodents and relative safety to human beings and household animals. At present, warfarin appears to be the most successful in control campaigns against domestic rats. However, the poison and bait which appear to be most appropriate in each case should be selected. In addition, the authors point out that, if the initial poisoning has been ineffective, follow-up with a second poison and a change of bait can produce good results.

ANON. (1950). Service vétérinaire cantonal et Institut Galli-Valerio. Plaquette 1950. **[The Galli-Valerio Veterinary Research Laboratory, Lausanne, Switzerland.]** pp. 102. Lausanne: Imprimerie Vaudoise. **1275**

This volume is intended as a souvenir of the official opening of the Galli-Valerio Veterinary Research Institute at Lausanne. After suitable tributes to the scientist after whom it is named, and others associated with the foundation of the Institute, a short history of the progress of veterinary science and animal husbandry in Switzerland since 1798 is given. Papers from the veterinary services of the cantons follow; amongst them, a claim to have cured 12 out of 15 cases of bovine malignant catarrh by intravenous injection of a total dosage of 450 g. of hexamethylenetetramine; a report on an outbreak of F. & M. disease type O at Solalex in the canton of Vaud in 1949, treated by slaughter of direct contacts and vaccination of neighbouring herds; and a report on *Br. melitensis* infection in sheep which did not affect goats in contact with them. Some human cases of undulant fever were reported, but no figures are given.—R. MACGREGOR.

GLEISER, C. A. (1953). **The Armed Forces Institute of Pathology and its relation to veterinary medicine.**—*J. Amer. vet. med. Ass.* 122, 269-271. **1276**

G. gave an account of the history of the Institute and of the work of its various departments. It is a general agency for consultation, diagnosis, research and advanced training in pathology. Its veterinary section provides a diagnostic pathological service to the Veterinary Corps of the Army and Air Force and its veterinary register is one of the few registers which maintains a diagnostic service for civilian practitioners.—D. S. RABAGLIATI.

See also absts. **1229** (rodent destruction); **1340** (book, food hygiene).

LIVESTOCK HYGIENE

SAINSBURY, D. W. B. & DUNKIN, A. C. (1953). **The climatic environment in the modern piggery.**—*Brit. vet. J.* **109**, 495-506. [Authors' summary modified.] **1277**

The authors described investigation of the winter climatic environment in two modern piggeries in which pigs were being fattened economically: one a completely enclosed building on the "Danish" principle and the other consisting of insulated sties leading to partly covered yards, this being the so called "McGuckian" design. Both buildings were well insulated and ventilated. Temperature from 50° to 65° F., and a relative humidity of 70% were easily maintained without heating the buildings artificially. Average ventilation rates of 300 and 720 cu. feet per pig per hour respectively, enabled atmospheric conditions to be kept satisfactory. Materials with thermal transmittance values of 0·3, or less, provided good thermal insulation. The wind speed had a definite and sometimes pronounced effect on the difference between inside and outside temperatures.

MEETHAM, A. R. (1952). **Atmospheric pollution: its origins and prevention.** pp. 268. London: Pergamon Press Ltd. 35s. **1278**

In more primitive times all household and similar refuse was dumped in the street. It required many years to show the disastrous effects of this practice. We are now in a similar position with regard to products of fuel combustion and of some industrial processes—which are freely discharged into the air. The resultant damage to health and amenities is great.

In this concise book the author examines the problem in its various aspects. Apart from the strictly professional viewpoint such as the now well known fluorine danger to cattle and sheep, the reader as a citizen will find this book startling. In one square mile of a town it is not uncommon for a ton of coal to be burnt every minute and this will produce about 0·05 of a ton of pollution, excluding carbon dioxide. This amount could cause severe pollution below roof level in 36 seconds, but fortunately most of it escapes upward. The fog of December 1952 in parts of Great Britain showed that certain conditions could cause an unusual amount to be retained at low levels. The direct damage caused by smoke is estimated at £20 per ton of smoke *per annum* and ten domestic fires in a year or a quite modest industrial concern in a week can produce one ton of smoke. Sulphur dioxide in direct damage costs from 7s. 4d. to 8s. 4d. per ton of coal burnt.

Among the subjects covered in the fifteen chapters are:— fuels, the various types of heating apparatus, fuel economy, the distribution of atmospheric pollution in Great Britain, its effects on health, and legal aspects. A short bibliography follows each chapter and there is an index.—G. SLAVIN.

REPRODUCTION AND REPRODUCTIVE DISORDERS

CRAPLET, C. (1952). Reproduction normale et pathologique des bovins. **[Normal and pathological reproduction of cattle.]** pp. xxi + 260. Paris: Vigot Frères. Fr. 1700. **1279**

The first 152 pages deal with anatomy and physiology. Then follow 16 on artificial insemination, 57 on general pathology, and 18 on the specific diseases. The account of normal reproduction is well worth perusal. The author states that physiological studies on the cow are impossible for financial reasons, and bases the chapters largely on results from small animals, ignoring a considerable volume of British and American work on cattle. He recognizes the existence of a normal uterine flora and describes cyclic changes in the endometrium. He correctly assesses the role of vitamin E in reproduction, and specifies the calcium and phosphorus requirements, but does not mention the possibility of disturbances caused by an incorrect Ca/P ratio. The role of copper and manganese in reproduction in cattle is not mentioned.

The part dealing with artificial insemination omits references to the deep freezing

of semen and its treatment with antibiotics, and there are other omissions. The author's conclusions on the place of artificial insemination in French economy make better reading. The ideas of progeny testing and the proven sire appear to have not yet gained acceptance in France. Many peasants cannot feed their stock well enough to justify insemination from good bulls.

Throughout the pathology section runs the plaint that no veterinary intervention can hope to counteract the effects of bad husbandry resulting from a " get-rich-quick " outlook of so many stock owners, which appears to be even more prevalent in France than in Britain. In general this section is stimulating and useful, especially for its review of recent French and Belgian literature. Remarks on " spontaneous " abortions are perhaps the best in the book. The author does not always clearly distinguish between suboestrus and retained corpus luteum. The suggestion that protection of epithelium by vitamin A is necessary for the proper function of the bovine epithelium, although interesting, should not have been stated as proven. Treatment of cystic ovaries by luteinizing hormone is not mentioned, neither is the possible use of progesterone in recurrent early foetal death and imperfect luteinization.

The chapter on " bull-burn " vaginitis is interesting, but the author does not appear to recognize that the vaginal symptoms of trichomoniasis can be very similar. Since there is no mention of *Vibrio fetus* infection, the chapter on trichomoniasis contains the most interesting study of genital disease. The possibility of infection remaining latent for long periods is not appreciated, and diagnosis by blood or mucus agglutination tests is denied. Much space is devoted to the eradication of brucellosis, which suggests that vaccination results, even with Strain 19, have generally proved unsatisfactory. Perhaps a generally low plane of nutrition and high incidence of natural infection have contributed to this circumstance

The general impression given by this book is of an author with wide experience of general practice, but with rather limited specialist knowledge. A bibliography is not provided, although the surnames of authors quoted besprinkle the text.—F. L. M. Dawson.

Rook, A. (1953). La precipito diagnosi come mezzo per l'identificazion del liquido seminale di tori diversi. [**A precipitation test for identification of semen from different bulls.**] —*Zooprofilassi*. **8**, 89-93. [English and Spanish summaries.] **1280**

R. used the precipitation test to confirm the identity of diluted semen. After collection and dilution of the semen a small proportion of serum from another species was added, for example, horse serum to identify Friesian semen, sheep serum to identify Shorthorn semen, and so on. The same method can also be used for individual bulls. To carry out an identity check on a semen sample, anti-sera (anti-horse, anti-sheep, anti-pig sera) were used as precipitating sera. Any reaction occurring after 10 min. was considered to be non-specific.—I. Martini.

Dott, H. M. (1953). **Dark-ground illumination of ram spermatozoa.** [Correspondence.]—*Nature, Lond.* **172**, 626. **1281**

Dark-ground illumination revealed that the midpiece and tail of the ram spermatozoon are not radially symmetrical. They are possibly either elliptical or bear lateral ridges.

—C. C. Bannatyne.

Cox, C. P. & Melrose, D. R. (1953). **The calibration of a photo-electric absorptiometer for the rapid estimation of counts of spermatozoa in bull semen.**—*J. agric. Sci.* **43**, 375-379. **1282**

The authors described the use of a simple formula for the determination of the number of spermatozoa in bull semen using as a basis the reading of a photoelectric absorptiometer. This technique gives highly accurate results when compared with those obtained by use of the usual haemocytometer count method.

—Ian Newsam.

Kampschmidt, R. F., Mayer, D. T. & Herman, H. A. (1953). **Lipid and lipoprotein constituents of egg yolk in the resistance and storage of bull spermatozoa.**—*J. Dairy Sci.* **36**, 733-742. **1283**

The non-dialyzable fraction present in egg yolk provides the necessary protection for spermatozoa against temperature shock and in addition contains an essential storage factor.

—Ian Newsam.

Holt, A. F. (1953). **The effect of glycerolisation of bull semen on fertility. II.**—*Vet. Rec.* **65**, 679. **1284**

Five bulls with a normal average conception rate of 66% showed no improvement in fertility when glycerol was added to their semen, but in 4 others with a normal average conception rate of 59%, similar treatment was associated with a rise of 8% in the conception rate.

—C. C. Bannatyne.

EHLERS, M. H., FLERCHINGER, F. H. & ERB, R. E. (1953). **Initial levels of fructose and citric acid in bull semen as related to fertility.**—*J. Dairy Sci.* **36,** 1020-1026. **1285**

The authors analysed 663 semen samples, used in 20 or more first and second inseminations, for initial levels of fructose and citric acid. There was no significant relationship between the presence of these constituents of bull semen and the non-return rates.

—IAN NEWSAM.

JOHNSTON, J. E. & BRANTON, C. (1953). **Effects of seasonal climatic changes on certain physiological reactions, semen production and fertility of dairy bulls.**—*J. Dairy Sci.* **36,** 934-942. **1286**

The behaviour of 14 bulls, kept in a subtropical climate, was studied over 53 weeks, but it was not possible to show statistically significant breed difference in respiratory rate, body temperature, or fertility of the bulls. The ability of the bulls to resist high temperatures and humidities seems to be an individual rather than a breed characteristic.—IAN NEWSAM.

SZU-HSIAO WU, ELLIKER, P. R. & MCKENZIE, F. F. (1953). **The effect of *Escherichia coli* on the semen of bulls, rams and rabbits.**—*Sta. tech. Bull. Ore. agric. Exp. Sta.* No. 27. pp. 32. **1287**

When bull, ram or rabbit semen, diluted in egg yolk-sodium citrate, was inoculated with *Bact. coli* and incubated at 38° or at 5°C. the motility of the spermatozoa was depressed after 4 and 96 hours respectively. The oxygen uptake in such suspensions consistently exceeded that of the spermatozoa plus that of the organisms alone, even when washed spermatozoa, or washed cells of the organism alone were used, but not when the organisms used had been heated at 65°C. for 30 min. The main factor involved appeared to be an accumulation of hydrogen peroxide in the suspension. The addition of either streptomycin, glucose or catalase reversed the depressing effect on motility: streptomycin possibly interfered with the terminal process of the organisms, thereby providing more pyruvate for the spermatozoa; glucose possibly blocked the formation of amino acid oxidase in the bacterial cells, thereby eliminating the deamination of amino acids so that less hydrogen peroxide was formed and more pyruvate was provided for the spermatozoa. That catalase reversed the depressing effect on motility confirmed that the main factor responsible for depression of motility was accumulation of hydrogen peroxide, with consequent interference with glycolysis.—F.E.W.

SHERMAN, J. K. & BUNGE, R. G. (1953). **Effect of glycerol and freezing on some staining reactions of human spermatozoa.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 179-180. [Authors' summary modified.] **1288**

No differences were observed between the staining intensities of spermatozoan nuclei in untreated and glycerol treated semen, either before freezing or after thawing, when they were stained at pH 4, 5, 6, 7, 8, 9, or 10 with certain oxidation-reduction potential indicator dyes. On the basis of this criterion, it was demonstrated that treating 9 parts of liquefied semen with one part absolute glycerol, placing it in an insulated box containing dry ice (−70°C.) for 24 hours, and then thawing it in a water bath at 37°C. does not modify those proteins of the spermatozoan nucleus which are stained.

MAWSON, C. A. & FISCHER, M. I. (1953). **Zinc and carbonic anhydrase in human semen.**—*Biochem. J.* **55,** 696-700. [Authors' summary modified.] **1289**

Zinc occurs in high concentration in human semen, especially in the first fraction of the ejaculate, which is mainly composed of prostatic secretion. Spermatozoa contain a higher concentration of zinc than any other human tissue yet examined. The zinc contained in seminal plasma is partly in a dialysable form. Seminal plasma contains negligible amounts of carbonic anhydrase. A little carbonic anhydrase is found in spermatozoa, but only about 0·05% of the zinc present in the sperm can be accounted for in this way.

MUKHERJEE, D. P., ROY, A. & BHATTACHARYA, P. (1953). **The effect of feeding thyroprotein on semen quality and on some physiological conditions of goats. I. Effect on reaction time and semen characteristics.**—*Indian J. vet. Sci.* **23,** 1-7. **1290**

ROY, A., MUKHERJEE, D. P., LUKTUKE, S. N. & BHATTACHARYA, P. (1953). **The effect of feeding thyroprotein on semen quality and on some physiological conditions of goats. II. Effect on sperm nutrient and its utilisation.** — *Ibid.* 9 - 14. [Absts. from authors' summaries.] **1291**

I. Observations were made on 7 goats treated with 1 g. thyroprotein daily and on 7 control animals for a period of 14 weeks during May to August. Thyroprotein feeding had no significant effect on the 'reaction time' (the

interval between introduction of the male to the female and ejaculation), initial motility, total number of spermatozoa per ejaculate and percentage of abnormal spermatozoa. Sperm concentration increased and semen volume decreased in treated goats.

II. Thyroprotein feeding had no significant effect on the methylene blue reduction time of semen. Initial fructose content decreased and the rate of fructolysis of semen increased.

TAYEB, M.-A.-F. & BLIN, P.-C. (1951-52). L'appareil génital mâle du chameau. **[The genital system of the male camel.]**—*Rev. Elev.* **5**, 203-212. 1292

A detailed study of the genital organs of 53 camels. The testicles are situated posterior to the sigmoid curve; and the inguinal canals are narrow and contain large lymph nodes besides the cords, hence inguinal hernia is rare. The extremity of the glans penis is hook-shaped, covering the orifice of the urethra, but straightens out in erection. The free end of the penis is directed downwards, but is drawn backward by preputial muscles during micturition and forwards during coitus. Erection consists of straightening and stiffening of the organ with very little enlargement.—R. MACGREGOR.

SWART, F. W. J. (1953). Ovariotomie bij het rund. **[Ovariotomy in cattle in New Zealand.]**—*Tijdschr. Diergeneesk.* **78**, 876-878. [English, French and German summaries.] 1293

S. gave a description of ovariotomy of cattle through a flank incision as performed under field conditions in New Zealand.

—C. A. VAN DORSSEN.

CLIFT, A. F. & HART, J. (1953). **Variations in the apparent viscosity of human cervical mucus.**—*J. Physiol.* **122**, 358-365. [Abst. from authors' summary.] 1294

The authors described a modified method of use of the Scott Blair capillary rheometer in which the influence of surface forces and elasticity upon the measurement of apparent viscosity is reduced to a minimum. The apparent viscosity of cervical mucus from 119 normal donors showed a minimum at ovulation, the corresponding maximum being hidden by menstruation. Two previously suspected maxima at the eighth and twentieth days were not confirmed by this method. In 37 cases of pregnancy, the apparent viscosity of the mucus was higher than the maximum recorded for a normal non-pregnant condition.

MOBERG, R. (1953). **Leucocytes during various sexual conditions in cattle.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2**, Pt. 1. 755-761. [In English. French and German summaries.] 1295

Cell counts during true oestrus in cows reveal increased neutrophiles with a drop immediately after heat; similar changes occur at parturition.—JOHN SEAMER.

BUSER, E. (1953). Die von 1921 bis 1951 angewandten Behandlungsverfahren der Retentio secundinarum und der puerperalen Infektionen des Rindes. **[Methods of treatment of retention of the placenta and puerperal infections in cattle from 1921-51.]**—*Schweiz. Arch. Tierheilk.* **95**, 542-555. [English, French and Italian summaries.] 1296

B. surveyed the results of treatment of nearly 7,000 cases of puerperal complications in cattle dealt with at the Veterinary Ambulatory Clinic at Berne from 1921–51. These included 5,700 cases of retention of the placenta and 1,000 cases of acute metritis. Mortality was calculated according to the decade and according to the method of treatment. Mortality, in retention of the placenta, fell from 11·1% in 1921 to 1·5% in 1951. This reduction may have been at least partly due to improvements in the management and feeding of cattle, and to the reduced incidence of brucellosis and TB. Irrigation of the uterus with antiseptics gave consistently poor results. The best protection against puerperal infections was obtained by the intra-uterine insertion of sulphonamides in tablet form or penicillin capsules, or by the s/c injection of a metritis vaccine.—R.M.

HANLEY, S. (1953). **A preliminary study of utero-tubal insufflation in the bovine animal.** —*Irish vet. J.* **7**, 142-160; 162-177. 1297

A study of utero-tubal insufflation in cows showed that the method of procedure and the type of cannula used in human medicine were unsuitable for the bovine animal. An entirely new type of cannula was therefore devised. This had at its end a rubber balloon which could be inflated after the cannula had been passed into the uterus thus causing obturation of the internal os. This had the added advantage that the cannula was self retaining. Experiments on live and dead subjects showed that gas would readily leave the bovine uterus if the fallopian tubes were patent at pressures below 80 mm. Hg. but, unlike the human uterus, the bovine uterus is very easily ruptured so that the pressures used must not much exceed this figure.

H. gave details of the technique and discussed the results; he concluded that utero-tubal insufflation is feasible as a clinical test in cattle.
—J. A. NICHOLSON.

PERRY, F. A. & GILMAN, J. P. W. (1953). **Disturbances in reproduction resulting from a riboflavin deficient diet in rats.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 624-628. [In English. French and German summaries.] **1298**

The authors described reduction in the number of offspring, increased percentage of foetal resorption and abnormal and underdeveloped foetuses which follow the feeding of a riboflavin-deficient diet to female rats.—R.M.

EATON, O. N. & SIMMONS, V. L. (1953). **Inducing extraseasonal breeding in goats and sheep by controlled lighting.**—*Circ. U.S. Dep. Agric.* No. 933. pp. 16. [Abst. from authors' summary.] **1299**

An account of an experiment with goats and Karakul ewes to induce out-of-season breeding by artificially controlling the dark-light ratio. Both species responded to the treatment, and 59·4% of the goats and 85·7% of the ewes subjected to controlled lighting bred during April, May, and June as compared with 16·4% and 44·7% in the control groups.

Karakul sheep have a wider range of breeding season during the year than goats.

The average interval between oestrous periods in the goats was 21 days. There was no appreciable difference in the length of the interval between does coming into oestrus at the normal time of year and those experiencing induced oestrus in the spring. The average duration of oestrus was 37·7 hours. There was an indication that oestrus occurring in the autumn may last a few hours longer than that occurring in the spring. Length of gestation, however, was no different in spring-bred and in autumn-bred does. The birth-weight of kids and lambs born in the autumn was less than that of those born in spring. Mortality at birth and during the first month was greater among autumn-born kids than among those born in spring.

FARNER, D. S., MEWALDT, L. R. & IRVING, S. D. (1953). **The roles of darkness and light in the activation of avian gonads.**—*Science.* **118,** 351-352. **1300**

In the white-crowned sparrow intermittent light stimulation results in greater testicular growth than a single exposure to light of the same total duration. The authors suggested that this is due to a carry-over of the response into the dark period, the carry-over being dependent on the length of the photo-period.
—A. SEAMAN.

PARKES, A. S. (1953). **Prevention of fertilisation by a hyaluronidase inhibitor.**—*Lancet.* **265,** 1285-1287. [Abst. from author's summary.] **1301**

'Rehibin' (tri-gentisic acid), a highly active inhibitor of hyaluronidase, prevents fertilization when added *in vitro* to rabbit semen before insemination, at the rate of about 5 mg. per ml. of undiluted semen. The drug has no ordinary spermicidal action in the amounts used, and the effect on fertilization probably depends, partly, but possibly not wholly, on its capacity to inhibit hyaluronidase. Attempts to inhibit fertilization by the administration of large amounts of rehibin orally or by injection gave no reproducible positive results, but absorption of this large-molecule material may well have been negligible.

MILJKOVIĆ, V. (1952). Sprečavanje gravid-iteta kuja primenom stilbestrola. **[Interruption of pregnancy in bitches with the aid of stilboestrol.]**—*Vet. Glasn.* **6,** 636-639. [In Croat. German summary.] **1302**

Interruption of pregnancy was obtained in 12 bitches and 3 cats following s/c injections of diethylstilboestrol (in oil), 2·5–5 mg. and 1 mg. respectively on alternate days from the 6th-7th day after mating.—I. MARTINI.

BURRIS, M. J., BOGART, R. & KRUEGER, H. (1953). **Alteration of activity of thyroid gland of beef cattle with testosterone.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 181-183. **1303**

In beef heifers and steers weighing 500 lb., given weekly i/m injections of testosterone at a dosage of 1 mg./kg. body wt. and slaughtered when they weighed 800 lb. together with untreated controls, the average daily gain increased while their feed requirement per unit gain decreased. There was increase in the weight of the thyroid gland, an increase in its secretory activity, and a decrease in its thyroxine content as assayed in thiouracil-treated mice.—F.E.W.

BOLTON, W. (1953). **The effect of sex hormones on comb growth in immature pullets**—*J. Endocrin.* **9,** 440-445. [Author's summary modified.] **1304**

B. studied the effects of injecting oestradiol dipropionate (ODP), testosterone propionate

(TP) and progesterone (P) in immature pullets. TP evoked hypertrophy of the comb and wattles, but not ODP or P. The greatest comb growth was observed when all three hormones were injected; next in descending order were combs from birds receiving TP alone, and TP with either ODP or P.

Injections of all three hormones produced a slight increase in proliferative activity of the stratum germinativum and a decrease in the density of the connective tissue of the corium of the combs when compared with those of birds injected with TP alone. The combs of birds treated with ODP showed prominent blood capillaries in the peripheral layers of the corium when frozen sections were stained with Scharlach R. This is thought to have been due to the marked affinity of their r.b.c. for the stain and indicated a high lipoid content of the cell membrane. Similar differences were also noted in the combs of normal laying female as compared with normal male birds.

These histological differences provide a possible explanation for the known differences in shape, colour and texture between female and male combs.

It is suggested that the histological examination of the comb provides a means of establishing the validity of an assay of a hormonal preparation by the comb growth technique.

HERRICK, J. B. (1953). **Clinical observation of progesterone therapy in repeat breeding heifers.**—*Vet. Med.* **48,** 489-490. [Abst. from author's summary.] **1305**

Of 40 heifers selected from dairy and beef herds on account of a history of repeated failure to conceive and found normal on clinical examination, 20 were injected with 500 mg. of progesterone at the time of service; 13 of these became pregnant as compared with 4 of the 20 untreated controls.

EDGAR, D. G. (1953). **The progesterone content of body fluids and tissues.**—*J. Endocrin.* **10,** 54-64. [Author's summary copied *verbatim.*] **1306**

By means of a chemical assay method, progesterone was found in blood from the vein draining an active ovary in the pregnant sow, non-pregnant ewe and in the non-pregnant sow. It was not found in blood from the ovarian vein of a ewe with inactive ovaries, nor in peripheral blood of the pregnant and non-pregnant ewe, mare, cow, sow, and female rabbit, nor of the castrated ram. The hormone was present in fluid from the mature Graafian follicle of the cow and sow, and in fluid from pathological ovarian cysts in the sow. The progesterone content of corpora lutea from the sheep, calf and elephant was also determined.

VARENIKA, N. (1952). **[Anomaly of the hymen and sterility in domestic animals.]**—*Vet. Glasn.* **6,** 754-758. [In Serbian.] **1307**

In spite of the persistence of a well developed annular hymen a mare was found to be pregnant and foaled without difficulty.

—I. MARTINI.

DANELIUS, G. (1951). Sterilitetsproblem hos sto. **[Sterility in mares.]**—*VI. Nord. Veterinärmötet.* [Proceedings of the sixth Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th-11th 1951.] pp. 169-178. [In Swedish. Abst from English summary.] Discussion pp. 178-179. **1308**

D. discussed sterility in mares, particularly that caused by irregularity in the oestrous cycle, and described 17 cases of sterility to illustrate various aspects of the subject. He emphasized the importance of diagnosing the time of ovulation by means of rectal and vaginal examinations.—R.M.

ULBERG, L. C., BLACK, W. G., KIDDER, H. E., MCDONALD, L. E., CASIDA, L. E. & MCNUTT, S. H. (1952). **The use of antibiotics in the treatment of low fertility cows**—*J. Amer. vet. med. Ass.* **121,** 436-440. **1309**

Of 23 " repeat-breeder " cows injected *via* the cervix into the lumen of the uterus with a mixture of dihydrostreptomycin, aureomycin and penicillin, 8 had normal embryos when slaughtered 34 days after a max. of two inseminations. Of 25 untreated controls 14 had normal embryos. The difference was not regarded as statistically significant.—C. C. BANNATYNE.

MOBERG, R. (1951). Iakttagelser rörande tidig fosterdöd och därmed sammanhängande fosterresorption eller abort på tidigt stadium hos ko. **[Foetal absorption and habitual abortion in cows.]**—*VI. Nord. Veterinärmötet.* [Proceedings of the sixth Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th-11th 1951.] pp. 157-168. [In Swedish. English summary. Abst. from English summary.] **1310**

M. reviewed the liferature and described 6 cases of probable absorption of the foetus and 3 of habitual abortion in cows. He discussed diagnosis and treatment.—R.M.

THOMSEN, A. (1953). Om 100 tilfaelde af stenkalve-aborter. Fortalt af praktiserende

dyrlaeger. **[One hundred cases of abortion of mummified foetuses.]** — *Medlemsbl. danske Dyrlaegeforen.* **36**, 302-306. **1311**

The following information was obtained from 47 practising veterinarians concerning 100 cases of abortion of mummified foetuses:—(1) The age of the dam was of no significance. (2) The commonest occurrence of abortions was during the fifth and sixth months of gestation. (3) Recurrence of cases on the same farm was not uncommon (at least 26% of the cases) and on one farm as many as 8 cases occurred in the 11 dairy cows. One cow calved a mummified foetus along with a normal twin. Various possible causes were mentioned.—H. Boyd.

Roberts, S. J. (1953). **A spastic syndrome in cattle.**—*Cornell Vet.* **43**, 380-388. **1312**

R. described a very slowly progressive disease of cattle, characterized by intermittent spastic cramps of the hind limbs and sometimes of the whole body musculature. Animals over 6 years old are chiefly affected, and there is a familial occurrence. R. suggested that the condition may be due to a central derangement of the postural reflex mechanism.—J. E. Smith.

Young, J. G. (1953). **A note on the occurrence of an epithelial defect in a grade Hereford herd.**—*Aust. vet. J.* **29**, 298-300. **1313**

An account of a semi-hairless anomaly in two steer calves in a grade Hereford herd in North Queensland. Similar conditions reported in two polled Hereford herds in the U.S.A. were probably due to recessive genes, and it is suggested that this anomaly is due to a similar cause. Y. gave no genetic evidence.

—M. H. Hardy.

Fischer, H. (1953). Die Genetik der Doppellendigkeit beim Rind. **[Genetics and so-called " double-muscled character " in cattle.]**—*Fortpfl. Besamung Haustiere.* **3**, 25-27. **1314**

The so-called " double-muscled character " in cattle is a hereditary defect which is transmitted as a simple recessive. Affected animals should not be used for breeding.—H. Behrens.

Nielsen, J. (1950). Arvelig lamhed hos kalve. Undersøgelser over medfødt arvelig lamhed i baglemmerne hos kalve av Rød Danske malkerace. **[Studies on congenital paraplegia of Danish Red calves.]** pp. 173. Copenhagen: Danske Forlag. **1315**

This is a thesis based on cases of congenital hereditary posterior paralysis in Danish Red calves, dealt with during 1938-48, and may be considered an extension of Loeje's work (1930). The first third of the text is devoted to a review of the various lethal conditions previously reported in the literature and this is followed by a clinical description of the condition in question. The calves are born apparently normal except for partial paraplegia, although the extensor muscles appear to be partially functional. The condition was traced back to one bull, and appeared to be a simple Mendelian recessive lethal factor, other possible causes having been excluded.

The author reviewed the incidence of heterozygosity in regard to this gene for Danish Red cattle and discussed methods for its detection and elimination. There are 34 tables and a 7-page English summary.

The second half of this thesis is made up of 3 large tables (92 pages) covering the probable route of tranference of this lethal gene from the presumed original heterozygote bull to the known heterozygote animals, using pedigree charts; the results of breeding heterozygote parents; the progeny of a number of bulls resulting from breeding: (a) such a bull with heterozygote cows, (b) such a bull with daughters of other heterozygote bulls, and (c) daughters of such a bull with heterozygote bulls.

—H. Boyd.

Ripps, J. H. & Henderson, A. R. (1953). **Congenital pulmonic valvular stenosis in a dog. Report of a case successfully treated surgically.**—*J. Amer. vet. med. Ass.* **123**, 292-296. **1316**

An historical review of the condition, followed by an account of the symptoms and treatment, by the Brock procedure, of a 21-month-old dog. The stenosis was approached by way of the right ventricle, dilated and the conical structure existing there bisected by a Brock knife to create a bicuspid valve.—D. Poynter.

Messieri, A. & Monti, F. (1953). Comunicazione interventricolare cardiaca congenita in un cane identificata clinicamente e confermata mediante cateterismo cardiaco. **[Catheterization of the heart as an aid to diagnosis of a congenital interventricular opening in a dog.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 296-300. [French and German summaries.] **1317**

By passing a catheter down the right external jugular vein of an anaesthetized dog, the authors were able to demonstrate on radiographs the existence of an interventricular opening in the heart, which confirmed the clinical diagnosis.—R.M.

See also absts. **970-971** (*V. fetus* infection); **986** (effect of pregnancy and parturition on tuberculin test in sows); **1010-1014** (brucellosis); **1223** (protective influence of pregnancy on collagen disease lesions); **1343** book, genetics and breeding).

ZOOTECHNY

BAYER, Z. (1952). Utjecaj amonijačne sode, naftalina i merpina-WS-extra 40 na konzerviranje soljenjem sirovih svinjskih koža. **[Influence of sodium anhydrous carbonate, naphthalene, and " Merpin-WS-extra-40 " on the preservation of raw pigskins by salting.]**—*Veterinaria, Sarajevo.* **1,** 726-734. [English summary.] **1318**

The addition of 2% sodium carbonate, 1% naphthalene or both to the salt appeared to reduce the loss from the original weight of the skins; this loss was increased by the addition of 2% " Merpin-WS-Extra-40 " [composition not given]. These chemicals exert an unfavourable influence on the quality of the final product and they do not prevent colour changes (red-violet spots) on the flesh side of the skins. On the whole B. recommended abiding by the usual method of salting, with common NaCl.

—I. MARTINI.

SHEPPARD, D. (1953). **The accuracy of measurements of the mammary glands by the method of palpation.**—*J. Dairy Res.* **20,** 127-137. **1319**

To test the accuracy of the method of measuring the size of the mammary gland by palpation, S. compared measurements so made by 5 persons—one of whom was experienced in the use of this method on calves—on a set of 15 artificial " glands " of various sizes, in 3 different tests over a period of 6 months. Although the variation as between the 5 judges was considerable, individually estimated sizes tended to be correlated to true sizes.

—C. C. BANNATYNE.

ROBERTS, S. J. (1953). **An evaluation of the physical examination of dairy cows in New York State.**—*Cornell Vet.* **43,** 365-378. **1320**

An empirical consideration of the imperfections and limitations of the routine physical examination (details given) of dairy cows, and of the value of such examinations, properly conducted with the improvements suggested, both to the farmer and the milk consumer.

—C. A. E. BRIGGS.

GILLAIN, J. (1953). L'importation de bétail pakistanais au Congo belge. **[Importation of livestock from Pakistan into the Belgian Congo.]**—*Bull. Inform. INEAC.* **2,** 139-183. [In French. Flemish summary.] [Published in *Bull. agric. Congo belge.* 44, No. 3.] **1321**

G. gave a general account, from a visit to Pakistan, of agriculture in that country, with descriptions of the various domestic animals, including a brief history of the following breeds:— Red Sindhi, Sahiwal, Tharparkar, Bhagnari, Dhanni and Lohani cattle; Ravi, Nili and Kundi buffaloes; various breeds of sheep and goats, equine species, camels, and poultry. He made a choice of cattle, buffaloes and goats and purchased and imported into the Belgian Congo bulls, cows, heifers and calves of the Sahiwal and Tharparkar breeds, male and pregnant female buffaloes and Kamori goats—a total of 81 animals. He discussed a future programme for the improvement of the African indigenous breeds and methods that might be adopted for the preservation of the two best types of cattle (Lugware and Sanga).

—J.D.

See also abst. **1343** (book, genetics and breeding).

TECHNIQUE AND APPARATUS

WEDUM, A. G. (1953). **Bacteriological safety.**—*Amer. J. publ. Hlth.* **43,** 1428-1437. **1322**

Persons employing varied or new techniques in studying highly infectious organisms causing disabling diseases are entitled to the protection afforded by a bacteriological safety cabinet. A screwed dome on a slotted cup is an effective safeguard against breaking tubes of cultures in the centrifuge. Infective animals, particularly those exposed to bacterial aerosols, should be housed in ventilated cages or solid-bottomed, solid-sided cages placed on racks equipped with high intensity ultra-violet light. Animal caretakers require protective goggles.

The best equipment is ineffective if it is not accompanied by good technique.—W. R. BETT.

CLAYDON, T. J. (1953). **Methods for studying factors that influence the sanitary condition of milking machine teat-cup liners.**—*J. Dairy Sci.* **36**, 391-401. **1323**

Using a modified "artificial udder" and "milking" technique to contaminate milking machine teat-cup liners for subsequent bacteriological studies, the degree of contamination obtained was uniform in each of the four liners in a set and in each set of liners, and was similar to that obtained under practical conditions. The method therefore appeared to be suitable for routine use in such studies.

—C. A. E. BRIGGS.

LINCICOME, D. R. (1953). **A streptococcal decapsulation test for detection of hyaluronidase activity in animal parasites.**—*Exp. Parasit.* **2**, 333-340. [Abst. from author's summary.] **1324**

L. described a slide method for the qualitative demonstration of hyaluronidase activity in parasites, depending on the ability of the enzyme to depolymerize the hyaluronic acid in the capsules of mucoid streptococci, with consequent destruction of the capsule of young cells. The reaction volumes and the materials used are minute and the technique therefore lends itself to the examination of diverse types of parasites or particular glands or structures of individuals.

THEODORE, F. H. & FEINSTEIN, R. R. (1953). **Preparation and maintenance of sterile ophthalmic solutions.**—*J. Amer. med. Ass.* **152**, 1631-1633. **1325**

The authors suggested a method of sterilization for the commercial preparation of sterile ophthalmic solutions containing heat-labile drugs. Of the preservatives suitable for adding to sterile solutions chlorobutanol was the most satisfactory. They stressed the importance of sterile handling of the finished products.—E.G.

See also absts. **970-971** (diagnosis of *V. fetus* infection); **1051** (preparation of chrome vaccine); **1055** (preparation of dourine antigen); **1341** (book, basic microtechnique); **1342** (book, colorimetric chemical analytical methods).

REPORTS

UNION OF SOUTH AFRICA. (1953). **The South African Institute for Medical Research, Johannesburg. Annual Report for the year ended 31st December, 1952.** [CLUVER, E. H.] pp. 86. Johannesburg: The Institute. **1326**

Using a modification of existing methods, it was found that barbiturates and thiobarbiturates (or their metabolites) could be detected unmistakably in the urine of horses even when small quantities were given by stomach tube or by i/v injection. It is difficult to detect barbiturates in the blood or the saliva of horses. Even large doses are eliminated from the urine within 30 hours.

In lambs under deep chloral hydrate anaesthesia, pepsin refined antitoxins of *Clostridium welchii, Cl. oedematiens* and *Corynebacterium diphtheriae,* given by stomach tube or injected directly into the abomasum or ileum, passed into the circulation, but not in one lamb, which was fully conscious when given antitoxin by stomach tube. It is suggested that in the unconscious lambs the pyloric sphincter is relaxed, allowing the antitoxin to pass quickly from the abomasum and so escape prolonged action by the gastric juice. Further work is in progress.

Of 109 strains of tubercle bacilli isolated from human patients 3 were of the bovine type.—J. A. GRIFFITHS.

BOMBAY, INDIA. (1951). **Annual administration report of the Department of Animal Husbandry and Veterinary Science of the Bombay State for the year 1949-50.** [SAHAI, L.] pp. 108. Bombay: Govt. Central Press. 2s. 6d. **1327**

In all, 252 Veterinary Hospitals and Dispensaries functioned in Bombay State during the year. Deaths due to contagious diseases were: ANTHRAX 245; HAEMORRHAGIC SEPTICAEMIA 1,598; BLACKLEG 10,084; RINDERPEST 1,348. The field staff vaccinated 15,047 animals against ANTHRAX, 395,861 against HAEMORRHAGIC SEPTICAEMIA, 426,010 against BLACKLEG, and 416,350 against RINDERPEST.

A Serum and Vaccine Institute was established and vaccines against HAEMORRHAGIC SEPTICAEMIA, BLACKLEG, and GOAT POX were prepared.

There were 172 students at the Bombay Veterinary College.

The report includes the activities of the

Bombay City and Harbour Veterinary Department and those of the States of Baroda and Kolhapur which were merged into Bombay State.—C. SEETHARAMAN.

NIGERIA. (1952). **West African Institute for Trypanosomiasis Research annual report for 1951.** [MULLIGAN, H. W.] Kaduna, Nigeria: The Institute. 1328

This is the first report published by the Institute, which has been established to study TRYPANOSOMIASIS of animals and man. The laboratories are in Nigeria at two main centres with the sections of Entomology and Epidemiology at Kaduna and the sections of Protozoology and Veterinary Trypanosomiasis at Vom, the Headquarters of the Veterinary Department of Nigeria. Following the completion of trials with antrycide methyl sulphate it was decided that its use in cattle on a large scale by officers of the Nigerian Veterinary Department is warranted. More recently it was shown that cattle treated with antrycide methyl sulphate are protected against TRYPANOSOMIASIS when passed through areas infested by *G. morsitans, G. longipalpis, G. palpalis,* and *G. tachinoides,* and also when kept for lengthy periods in (a) a *G. palpalis* area and (b) in an area infested by *G. morsitans*. [See also *V.B.* **22,** 3665, 3671, 3672; and **23,** 849, 850, 1487, 1858, 1861 & 2237.]—J. A. GRIFFITHS.

NORTHERN RHODESIA. (1953). **Department of Veterinary Services. Annual Report for the year 1952.** [HOBDAY, J.] pp. 23. Lusaka: Govt. Printer. 1s. 1329

Attempts to transmit STREPTOTHRICOSIS (Senkoba skin disease) by every possible method failed. The most successful method of treatment has been by the parenteral injection of organic arsenicals.

A condition in which horses have posterior paralysis was considered to be due to infection by *Babesia equi;* they also have jaundice and incontinence of urine and leucopenia. A rather similar condition occurs in cattle but the cause is not known. Antrycide given every two months for 18 months to a herd of cattle maintained in a tsetse fly area protected the animals so treated while untreated controls became infected with *T. congolense* and *T. vivax* and died.

An outbreak of BOVINE MALIGNANT CATARRH occurred on a farm where there were large herds of wildebeest in close contact with cattle. NEWCASTLE DISEASE was recorded for the first time in N. Rhodesia and was controlled by the use of the Komarov egg-adapted live vaccine.

In controlling TICK INFESTATION of cattle portable power sprayers were tried and are considered to have considerable possibilities and to have advantages over dipping in the conditions which exist in Africa. A visiting American worker, Professor Matthysse, studied TICK INFESTATION and its control: his work is to form the subject of a separate report.

The unripe pods of the "Mukuba" tree (*Albizzia* sp.) were suspected to be the cause of poisoning in cattle and feeding experiments confirmed this suspicion.

Details are given of quarantine and marketing of livestock and of slaughterings at the abattoirs including the Cold Storage Control Board abattoir where almost half of the cattle slaughtered were for butchers in the Belgian Congo.

Of 14,387 cattle slaughtered at the abattoir 3·14% were infested with "MEASLES" and 81·16% had LIVER FLUKE INFESTATION.

—J. A. GRIFFITHS.

SWAZILAND. (1953). **Department of Veterinary Services annual report for the year 1952.** [BARNARD, W. G.] pp. 69. [Mimeographed.] 1330

Single isolated deaths from ANTHRAX occurred in three areas. Animals in an infected area are immunized annually, cattle imported into the areas being inoculated as they arrive. Over 141,000 doses of vaccine were used. BLACKLEG is widespread: 1,332 cases were diagnosed.

No cases of TRYPANOSOMIASIS have been diagnosed during the past two years in the two tsetse fly areas: 27,849 smears were negative.

HEARTWATER takes a heavy toll of cattle in the middle and low veldt regions: 5,138 calves were immunized. All cattle are dipped every seven days except during the winter.

AFRICAN HORSESICKNESS, BILIARY FEVER and SENECIO POISONING are the only diseases of horses mentioned.

"MEASLES" (*Cysticercus cellulosae* infection) is the only important disease of pigs. TAENIA INFESTATION among the Swazi people is very common.

FOWL TYPHOID and FOWL POX cause losses. Outbreaks of SHEEP SCAB in nine areas involved 1,668 sheep.—J. A. GRIFFITHS.

SIERRA LEONE. (1953). **Annual report of the Veterinary Department for the year 1952.**

[BIRKETT, J. D.] pp. 8. Freetown: Govt. Printer. 1s. 6d. 1331

Clinical symptoms of TRYPANOSOMIASIS seldom appear among the indigenous cattle even though they are carriers of trypanosomes except under very adverse circumstances. The disease occurs in imported breeds of pigs.

There were 11 outbreaks of RINDERPEST and four areas were declared infected: 10,408 animals were given lapinized virus and 3,672 received spleen vaccine. COCCIDIOSIS among rabbits used in the Laboratory limited production of wet lapinized virus. Other diseases mentioned are RABIES (2 cases confirmed); ORF (CONTAGIOUS PUSTULAR DERMATITIS) of goats; and FOWL POX, NEWCASTLE DISEASE, FOWL TYPHOID and FOWL CHOLERA.

—J. A. GRIFFITHS.

NYASALAND PROTECTORATE. (1952). **Annual report of the Department of Veterinary Services for the year ended 31st December, 1951.** [MACPHERSON, D. F.] pp. 19. Zomba, Nyasaland: Govt. Printer. 2s. 6d. 1332

BOVINE MASTITIS is increasing with the upgrading of the dairy herds. In one herd of 75 cattle there were 47 reactors to the tuberculin test; they were slaughtered. A retest after 8 months revealed that 24% of the survivors were infected. Two beef carcasses were found infected at Mzimba. One outbreak of avian type TB. was diagnosed. CASEOUS LYMPHADENITIS occurred among lambs on one estate. In the areas where BLACKLEG is endemic, animals are given annual inoculation. On one estate BLACKLEG occurred among sheep.

Cases of TRYPANOSOMIASIS have been treated with dimidium bromide in all provinces. Antrycide was used as a prophylactic in tsetse fly areas. EAST COAST FEVER is endemic in the Northern and Central provinces. Dipping is compulsory except in the Mzimba area. Cases of ANAPLASMOSIS were diagnosed among grade cattle owned by Europeans. Nivaquine was efficacious in treatment.

Nine cases of RABIES were confirmed in the Southern province, four in the Central province (one a donkey) and one in the Northern province. Three hundred dogs were vaccinated. HEARTWATER occurred among grade and indigenous animals.

Details are given of animal industries and husbandry schemes and of other work done.

—J. A. GRIFFITHS.

UGANDA PROTECTORATE. (1952). **Annual report of the Veterinary Department for the year ended 31st December, 1951.** pp. 39. Entebbe: Govt. Printer. Shillings 1/75. 1333

ANTHRAX occurs sporadically: 8,150 cattle were immunized. Two outbreaks in human beings resulted from the ingestion of infected hippopotamus meat. BLACKLEG occurred in all districts. In Mbale 1,000 animals died; 14,100 animals were immunized. BOVINE CONTAGIOUS PLEURO-PNEUMONIA remains endemic in Karamoja. Only one outbreak was reported, with 31 deaths.

The policy adopted for the control of EAST COAST FEVER is to improve calf management and to control tick infestation, by spraying in the endemic areas. Malnutrition plays an important part in losses attributed to EAST COAST FEVER.

In 172,700 cattle treated for TRYPANOSOMIASIS with antrycide methyl sulphate, results were spectacular; 11,900 were given dimidium bromide. There are two problems, (1) eradication of *T. congolense* and *T. vivax* in cattle in tsetse-free country marginal to areas of *G. morsitans* and *G. pallidipes* infestation, and (2) control of strains of *T. vivax* of relatively low pathogenicity in areas where cattle are in frequent contact with riverine *G. palpalis*.

RINDERPEST is still endemic in Karamoja: 64,300 cattle were given goat-passaged virus. In the Eastern Province and Masaka District outbreaks were controlled by using Kenya lapinized virus: 120,500 cattle were treated without mortality. RABIES is widespread in the West Nile District where eight confirmed cases occurred in dogs. The disease does not occur in other parts of Uganda.

Taylor, J. I. gave an account of the work of the Veterinary Research Laboratory including the results of experiments with antrycide in the prevention of TRYPANOSOMIASIS and the action of phenanthridinum compounds against *T. congolense* in mice. In RINDERPEST immunity tests cattle immunized 9 months previously with lapinized virus resisted infection with virulent virus and also goat-passaged virus. Of 485 small East African zebu cattle 2·88% were reactors to mammalian type tuberculin in the single i/d test and 6 were non-specific reactors. Of 55 Ankole cattle 34·5% were reactors to the mammalian type and 2 were non-specific reactors.

Details are given of the diagnostic work

and of the clinic. Lack of adequate staff has hindered progress in veterinary education.

—J. A. GRIFFITHS.

EAST AFRICA High Commission. (1953). **Virus Research Institute annual report 1952.** [HADDOW, A. J.] pp. 29. Nairobi: High Commission Printer. 1334

Major outbreaks of RIFT VALLEY FEVER among cattle and sheep in South Africa and Kenya and also the number of human cases, some with serious after-effects on vision, which occurred in South Africa, have drawn public attention to this disease. The virus was isolated repeatedly from mosquitoes in 1944 by the Institute's staff and other workers have found antibody in human sera among samples from Uganda. All major outbreaks of the disease have so far occurred among stock of imported breeds and the possibility therefore of a milder enzootic form existing among wild ungulates or the indigenous cattle and sheep was investigated, but in no sample of sera was a positive result obtained. Samples of sera were obtained from Uganda, Barotseland, N. Rhodesia and the Congo and included sera of human beings, cattle and wild animals.—J. A. GRIFFITHS.

TANGANYIKA. (1952). **Annual report of the Department of Veterinary Science and Animal Husbandry, 1951.** [REID, N. R.] pp. 40. Dar es Salaam: Govt. Printer. 3s. 1335

All trade cattle are vaccinated against ANTHRAX. Infection is greatest in the Singida district in cattle and in man. The main TB. problem is the presence of the disease in the Southern Highlands Province where it is spreading. BLACKLEG is widespread. An indication of African appreciation of vaccination was an order for 36,000 doses by the Masai. The immunization of 99,000 cattle in the Masai district against BOVINE CONTAGIOUS PLEUROPNEUMONIA was carried out with a loss of only 0·1% attributable to the inoculations.

EAST COAST FEVER appears to be widespread over the whole of Tanganyika and dipping or spraying is being applied to control the ticks. ANAPLASMOSIS is on the increase in the farming areas of the Northern Province. HEARTWATER occurred at Kongwa in the Overseas Food Corporation herds. Treatment of TRYPANOSOMIASIS in 24,451 animals was mainly with dimidium bromide although antrycide was also used.

F. & M. DISEASE caused much trouble on the stock routes in the Northern Province during the rains. Mud was an important factor in aggravating foot lesions. The control of RINDERPEST is the main function of the Veterinary Department: 1,637,290 inoculations were given. Kenya Attenuated Goat virus was used except for highly susceptible cattle when attenuated lapinized virus or spleen vaccine is used.

Extracts are given from the Report of the Veterinary Research Officer on routine work at the Veterinary Laboratory, Mpwapwa (Robson, J.).

The Animal Husbandry Report (White, D. G.) is given in full with illustrations.

Trade in Livestock and Animal Products (Newlands, H. W.).—This details the trade side of the Department's activities.

—J. A. GRIFFITHS.

BOOK REVIEWS

MACKIE, T. J. [Professor of Bacteriology, University of Edinburgh.] MCCARTNEY, J. E. [Medical Bacteriologist, Institute of Medical and Veterinary Science, Adelaide, South Australia.] (1953). **Handbook of practical bacteriology. A guide to bacteriological laboratory work.** pp. viii + 677. Edinburgh & London: E. & S. Livingstone, Ltd. 9th Edit. 25s. 1336

The ninth edition of " Mackie and McCartney " is no larger than its predecessors for although the text has been completely revised and much new material introduced the authors have also removed much that is no longer considered necessary. This is the sort of book that is never on the library shelf: it lives on the bench and is constantly being used by bacteriologist and technician alike.

Information can be found on almost every aspect of bacteriology and virology and there are many references to published work, some to papers that appeared as late as 1952. There are short sections on such varied subjects as fluorescence and phase-contrast microscopy, care of laboratory animals, tests for " designated " milk samples, and the technique of cultivating viruses in the embryonated egg.

Where the book deals with animal diseases

it sometimes proves inadequate or even misleading, as when it states that the microscopic test is not valid for demonstrating tubercle bacilli in milk (p. 300) and fails to mention the technique of examination for cell groups, or when it states that *Leptospira canicola* causes infectious jaundice in dogs (p. 555) and fails to mention nephritis. But it must be remembered that it is written for the general bacteriologist and virologist and is not a veterinary text.

No bacteriological laboratory can afford to be without this book: it is well produced, has a good index, and provides a wealth of information at a reasonable price.—E. G. White.

Ziegler, M. [Professor, Director of the Veterinary Research Institute, Dresden.] (1953). Die Eutertuberkulose des Rindes. Verbreitung-Entstehung-Feststellung, Alter und Entschädigung. [**TB. of the udder in cattle.**] pp. 74. Leipzig: S. Hirzel. DM 11. **1337**

This book gives a straightforward and well-illustrated account of a condition which appears to be of considerable importance in Germany. The author has obviously had the opportunity of examining a large number of cases. The pathogenesis and pathology of the different kinds of lesions are described on the lines of Nieberle's views. The author gives some account of the incidence of the condition in Germany, and describes the clinical features, but particular stress is laid on the possibility of early diagnosis by means of smears either directly from milk or from centrifuged deposit. A number of drawings are given, usefully showing typical microscopic fields. The author also shows how some assessment of the possible least age of any given lesion might be made. Throughout, he speaks as a man of experience. The book is recommended to German-reading students and others interested in tuberculous mastitis.—E. Cotchin.

Anon. (1953). **World distribution of helminthiasis.** (Including map.) pp. 21. New York, N.Y.: American Geographical Society $1.25. **1338**

This map is designed to show the world distribution of the most important helminthiases of man, the species of worm being grouped according to the mode of transmission, namely by ingestion, skin penetration or the bite of an insect. Ten common and widely distributed species are plotted on small-scale individual maps and the approximate rates of infestation are indicated. There is a résumé of epidemiology and a not very representative bibliography. The map is presumably intended for students of medical parasitology and the specialist will find a good deal to criticize.—S. Brian Kendall.

López y López, C. (1953). Enfermedades de las gallinas, conejos, pavos, patos, ocas, loros, canarios y pájaros. [**Diseases of poultry, rabbits and cagebirds.**] pp. xx + 499. Barcelona: Ediciones Gea. 3rd Edit. 120 pesetas. **1339**

After some good general chapters on the causative agents of disease, defence mechanisms, immunity, and the effects of hygiene and environment on the health and resistance of animals, the author devotes the greater part of this book to bacterial and viral infections, mycoses, deficiency diseases, and parasitic conditions, particularly those encountered in fowls in Spain.

The presentation is simple and succinct, being designed to provide concise general information on diagnosis, cure, and prevention for practitioners and poultry farmers; bibliographical references are not given.

The last section of the book is given over to a much briefer treatment of the disorders of rabbits, turkeys, geese, ducks, and cage-birds.

—A.S.

Harvey, W. C. [Medical Officer of Health, Borough of Southgate and Borough of Wood Green.] Perry, H. A. [Chief Sanitary Inspector, Borough of Guildford.] (1953). **Food hygiene handbook.** pp. x + 159. London: Heywood & Co. Ltd. 15s. **1340**

This book deals with food hygiene in so far as the handling of food is concerned rather than with the production and processing of food stuffs. It is not concerned with meat inspection or milk inspection and so is of interest to the catering trade, housewives, and others rather than to the veterinary officer.—M.C.

Gray, P. [Head, Department of Biological Sciences, University of Pittsburgh.] (1953). **Handbook of basic microtechnique.** pp. viii + 141. London: Cassell & Co. Ltd. 12s. 6d. **1341**

This is an elementary textbook for beginners. Pages are devoted to illustrations of how to fold a cardboard box, sharpen a knife, cut a section etc., and the text is painstakingly explicit about the simplest of procedures.

—L. M. Markson.

ANON. (1953). **A handbook of colorimetric chemical analytical methods for industrial, research and clinical laboratories. Developed for use with the Lovibond Comparator and the B.D.H. Lovibond Nessleriser.** pp. 206 + 14. Salisbury: The Tintometer Ltd. 2nd Edit. 15s. 1342

Colorimetric methods in which the Lovibond Comparator or the Lovibond Nessleriser can be used have been collected in this handbook in a more permanent form than the loose-leaf sheets which have been issued previously.

The instruments are described and details of a range of over a hundred estimations are given in which they can be used. These cover a wide chemical field, and are divided into six parts. One part deals with the determination of pH. Clinical estimations are given in another part; they consist of twenty-six methods which include those for sugar, urea phosphate, phosphatase, haemoglobin, cholesterol, proteins, and for sulphonamides in body fluids and lead in urine and faeces. The estimation of copper, iron, carotene, nitrate, nitrogen, magnesium in herbage, and the resazurin milk test are among methods in other parts.

The experimental technique of each estimation is described in detail and many can be used even where the final measurement of colour is not made by the Lovibond instruments. References are given where relevant.

The book is well produced on good paper, and provision is made in the binding for further pages to be added. It is reasonably priced.

—W. H. PARR.

CRAPLET, C. (1953). Génétique et élevage. **[Genetics and breeding.]** pp. ix + 292. Paris: Vigot Frères. Fr. 1920. 1343

This book, written for breeders and for officials concerned with the development and improvement of breeds of livestock, has for its object to summarize scientific knowledge on the subject.

The approach is dogmatic and references to literature are omitted.

The first part deals with the principles of Mendelism, the work of Morgan and statistical methods as applied to genetics. The second part describes the methods of selection and breeding which may be used by breeders, *e.g.* phenotypic and genotypic selection, pedigree breeding and family lines. The various methods of inbreeding and crossbreeding are then dealt with.

The third part deals with herdbooks, livestock shows and state schemes for improvement of breeds including such subjects as milk recording, and artificial insemination.

The whole provides an authoritative account of our present knowledge and indicates how it may be applied in practice.—M.C.

COOPER, M. M. [Professor of Agriculture, University of London.] (1953). **Beef production.** pp. x + 234. London, Edinburgh, Paris, Melbourne, Toronto & New York: Thomas Nelson & Sons, Ltd. 12s. 6d. 1344

The author discusses means of increasing beef production in the United Kingdom. The development of British beef breeds, their growth development and body form, and beef quality are described. Eighty pages are devoted to the principles and practice of breeding, and 28 to the nutrition of beef cattle. A chapter on cattle management in hill and marginal land is contributed by A. G. Davis. The book deals with the subject in an authoritative manner and is well illustrated with photographs.—R.M.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

ANDERSON, A. K. (1953). **Essentials of physiological chemistry.** pp. vii + 480. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd. 4th Edit. 40s.

BETT, W. R. (1953). **The preparation and writing of medical papers for publication.** pp. 28. London: Menley & James Ltd. 2nd Edit.

CATER, D. B. (1953). **Basic pathology and morbid histology.** pp. 330. Bristol: John Wright & Sons, Ltd.; London: Simpkin Marshall, Ltd. 42s.

DAVIDSON, J. N. (1953). **The biochemistry of the nucleic acids.** pp. viii + 200. New York: John Wiley & Sons, Inc.; London: Methuen & Co., Ltd. 2nd Edit. 10s. 6d.

FAIRBROTHER, R. W. (1953). **A textbook of bacteriology.** pp. viii + 492. London: William Heinemann Medical Books Ltd. 7th Edit., revised and enlarged. 20s.

FAULKNER, D. E. (1953). **Notes on animal health and industry for Africans.** pp. vi + 327. Nairobi, Kenya: Govt. Printer. 5s.

FRAUCHIGER, E. (1953). Seelische Erkrankungen bei Mensch und Tier. **[Mental disorders of man and animals.]** pp. 285. Bern & Stuttgart: Hans Huber. 2nd Edit. Swiss Fr. 26.80.

GRAY, A. P. (1954). **Mammalian hybrids. A check-list with bibliography.** pp. x + 144. Farnham Royal: Commonwealth Agricultural Bureaux. Technical Communication No. 10 of the Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh. [Royal 8vo.] 21s.

HADLEY, F. B. (1954). **Principles of veterinary science.** pp. xii + 546. Philadelphia & London: W. B. Saunders Co. 5th Edit. [Crown 8vo.] 27s.

HELLICH, H. (Revised by: STÖRIKO, K. R.) (1953). Die deutsche Tierseuchengesetzgebung nebst Ausführungsbestimmungen. **[Legislation on diseases of animals in Germany.]** pp. xx + 980. Berlin & Hamburg: Paul Parey. 2nd Edit. DM 72.

HOFMANN, W. (1950). **The reproductive disturbances of cattle: their treatment and prophylaxis.** pp. 54. Berne: Hans Huber. [Demy 8vo.] Swiss Fr. 9.40. [Edited and translated from the German by: H. JONAS.]

JONES, L. M. (1954). **Veterinary pharmacology and therapeutics.** pp. xiii + 850. Ames, Iowa: Iowa State College Press. [Crown 4to.] $11.00.

KAPPERT, H. (1953). Die vererbungswissenschaftlichen Grundlagen der Züchtung. **[Application of heredity in breeding.]** pp. vii + 335. Berlin & Hamburg: Paul Parey. 2nd revised & enlarged edit. DM 22.

LEAVELL, H. R. & CLARK, E. G. (1953). **Textbook of preventive medicine.** pp. xviii + 629. New York, Toronto & London: McGraw-Hill Book Co., Inc. $8.00. 64s.

SCHMIDT, J., v. PATOW, C. & KLIESCH, J. (1953). Züchtung, Ernährung und Haltung der landwirtschaftlichen Haustiere. **[Breeding, nutrition and husbandry of farm animals. Part I. General. Part II. Special.]** pp. viii + 352 & pp. viii + 400. Berlin & Hamburg: Paul Parey. DM 24 & DM 25.

SEXTON, W. A. (1953). **Chemical constitution and biological activity.** pp. xxiii + 424. London: E. & F. N. Spon, Ltd. 2nd revised & enlarged edit. 60s.

ANON. (1953). **Malaria terminology. Report of a Drafting Committee appointed by the World Health Organization.** Monograph Series No. 13. pp. 82. Geneva: World Health Organization; London: H.M. Stationery Office. Swiss Fr. 4. $1.00. 5s.

ANON. (1954). **Cold injury. Transactions of the Second Conference, November 20 and 21, 1952, New York, N.Y.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: FERRER, M. I.] pp. 242. New York: Josiah Macy, Jr. Foundation. [Demy 8vo.] $4.00.

ANON. (1953). **Connective tissues. Transactions of the Fourth Conference, February 18, 19 and 20, 1953, Princeton. N.J.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: RAGAN, C.] pp. 197. New York: Josiah Macy, Jr. Foundation. [Demy 8vo.] $3.75.

ANON. (1953). **Nature and structure of collagen. Papers presented for a discussion convened by the Colloid and Biophysics Committee of the Faraday Society at King's College, London, on 26 and 27 March, 1953.** [Edited by: RANDALL, J. T.] pp. ix + 269. London: Butterworths Scientific Publications. 42s.

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